The Builder.

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ILLUSTRATIONS.

A Lounge and Staircase in a Large Hotel.....Designed by Mr. Robert Atkinson.
1. Perspective View.
2. Sections.
3. Plan.

Houses, Parkside Gardens, Wimbledon
Houses, Burghley Road, Wimbledon
School Bath Centre, Amsterdam. } .....Messrs. Hubbard & Moore, Architects.

Illustrations in Text.

Houses, Parkside Gardens, Wimbledon. Plan Page 180
Houses, Burghley Road, Wimbledon. Plan ... Page 181
Illustrations to Student's Column .... Page 185

CONTENTS.

	PAGE
Architecture and Commercialism	165
Workmen's Compensation	166
Notes	167
Magazines and Reviews	168
The Architectural Association	170
The Architectural Association Spring Visits	174
The Royal Sanitary Institute	174
The Incorporated Clerks of Works' Association	176
The Surveyors' Institution	177
Architectural Societies	179
Fifty Years Ago	180
Illustrations :—	
A Lounge and Staircase for a Hotel	180
Houses, Wimbledon	180
Illustrations (*contd.*) :—	
School Bath Centre, Amsterdam	181
The London County Council	181
Applications under the London Building Act, 1894	183
Competitions	183
Books Received	183
Correspondence :—	
Rural By-Laws	183
Cudworth Railway Accident	184
A.A. Discussion Section	184
Westminster City Council	184
The Student's Column	184
Building Acts Amendment Bill	186
Obituary	186
General Building News	186
Foreign	187
Miscellaneous	187
Legal :—	
Trade Union Dispute	188
Dispute as to Paving Expenses	188
Patents	188
Some Recent Sales	189
Meetings	189
Prices Current	190
Tenders	191

Architecture and Commercialism.

LONDON is full of the stir connected with the schemes for new streets and the new buildings which are concomitant with them. Great are the opportunities which are now offered for the permanent architectural improvement and dignifying of the capital, for the introduction of a high class of architecture into our streets, for securing fine effects of architectural alignment and symmetry. But, unfortunately, in the schemes for new buildings which are being put forward and proclaimed aloud on the house-tops or in advertisement columns (which are the modern equivalent for the house-tops of the Old Testament) architectural art, in the true sense of the word, is the last thing that is thought of. The object of those who take up a plot of building land on a new street is, naturally, to make money out of it. We do not blame them for that; but why should it be supposed, as it apparently is, that getting a return for the money is incompatible with the employment of an eminent architect or with any attempt at high-class architecture? We read in papers just now of many building schemes which are or are to be submitted to the London County Council for their approval—schemes for new hotels, new theatres, etc., mostly of immense size and which must have considerable effect for good or bad on the architecture of London. On what principle or from what causes is it that the projectors of such building schemes almost invariably seem to gravitate towards what may be called the lower intellectual stratum of the architectural profession? Hardly ever do we read, in connexion with these building schemes in new streets, the names of architects who are celebrated as such, who occupy the higher rank of the profession, and who are favourably known in the world of art. There seems to be among building promoters a kind of natural antipathy to and dread of art, or of architecture in its higher sense. When we see the usual enthusiastic paragraphs in daily newspapers (one wonders who furnishes those paragraphs) about some astonishing new hotel or theatre which is to surpass every other erection of its kind in splendour and convenience, we know perfectly well that we shall not see in connexion with it the name of any eminent architect, any member of the Royal Academy, or any one who has an artistic reputation. It is not really that architects of the higher class make a building cost more; but they wish to take time and consideration about it; whereas what is wanted is the kind of architect who will rush the thing through as fast as possible, in order to get at the moment when it will begin to pay a return; and in some cases, too, we believe, the architect is selected on the ground that he is willing to invest money in the building as well as to draw the plans.

It is hardly the way to improve London architecture. It is true that the County Council is supposed to approve the designs and to have a power to veto them. But we fear this is an influence which does not go a very long way towards obtaining a higher result. The County Council had originally entertained the larger and more spirited idea that designs for buildings on the two most important new streets were to be carried out by one of a list of eminent architects named. This would have secured a higher order of architectural talent being employed on the new London architecture. But those who had proposed this well-intentioned scheme allowed themselves to be bullied out of it by a majority who were either ignorant or who had their own interests to serve.

It is not too late for the London County Council to reconsider its policy in these matters, and to take a higher and more decisive line in regard to the many new additions which are at present proposed (in some cases we might say threatened) to the architecture of London. The proposed French restaurant and garden scheme for the central site between Aldwych and the Strand we should in itself have been disposed to welcome, if well carried out in detail, as it would have secured an open space where it would be very desirable. There seem however to be drawbacks other than architectural connected with it. But the intrusion of monster hotels and other such buildings on prominent sites, regardless of either architectural scale or nobility of style, ought to be checked, or new London will be irretrievably spoiled.

WORKMEN'S COMPENSATION.

THE Court of Appeal has recently had to deal with a heavy list of over forty appeals under the Workmen's Compensation Act, and it is noteworthy that a large proportion of the decisions reported have to do with the building trade. As usual, "scaffolding" takes a prominent place in the decisions. In the case of Aylward *v.* Mathews the respondent was a crane erector, and the applicant was employed by him in the construction of a platform for a crane which was to be used in erecting certain school buildings. The platform, which was 62 ft. in height at the time of the accident, was a wooden structure supported on three legs, which were let into the ground and surrounded by bricks and other material to keep them in place. The legs were connected by cross-pieces, and planks were placed on these cross-pieces, and ladders placed on the planks. Whilst working on one of these legs on a ladder one of the planks supporting it broke, and the applicant sustained injuries. It was contended that a temporary wooden structure such as the above was not a "building" within the meaning of the Act, but the Court, affirming the arbitrator, held that there was nothing to prevent such a structure, whether of wood or not, and whether temporary or permanent, being deemed in fact a "building," especially as in all respects it fell within the purport of the Act. The point is much the same as that implied in the decision in McCabe *v.* Jopling and Palmer's Travelling Cradle, Limited, but in that case the Palmer Company erected the temporary structure on an existing building.

In the case of Fletcher *v.* Hawley a shop was being converted into a restaurant, and the applicant, a working carpenter, was engaged to put up a screen and to fit a lift by the respondent, the owner. At the same time another person was engaged in making a fireplace and a brick chimney, and for this latter purpose this last contractor had erected a scaffolding. This scaffolding was in no way necessary for the work the applicant was engaged upon, although he, as a matter of convenience, did make some slight use of it. The applicant whilst hammering a nail into the screen sustained an injury to the eye. The learned County Court judge held that the applicant could not recover compensation, since the respondent was not an "undertaker" within the meaning of section 7, subsect. 2, of the Act, because by reference to subsection 1 of the same section the "undertaker" must be the person "undertaking the repair, construction, or demolition" of the building "by means of a scaffolding." The Court of Appeal did not agree with this view, but held that it was not material whether the undertaker upon whom the claim was made had put up the scaffolding, since all that the Act requires is that there should be a scaffolding by means of which an operation of construction, demolition, or repair is being carried on. The Court pointed out that the fact that the applicant made some use of the scaffolding sufficed to bring the case on all fours with Mason *v.* Dean, decided in 1900, but it is important to observe that this decision is not confined to that fact. As it has been already decided by the Court of Appeal in the case of Maude *v.* Brook that the accident need not be connected with the scaffolding (see also Brindle *v.* Jones, *The Builder*, April 16, 1904, p. 116), and by the House of Lords in Hoddinott *v.* Newton Chambers that the word "scaffolding" only serves to form an artificial line of demarcation between buildings within and without the scope of the Act, the above decision appears the only logical conclusion the Court could arrive at.

In the case of Hartley *v.* Quick the old difficulty occurred of determining what constitutes a building of over 30 ft. high—a question which has caused so much litigation that the Departmental Committee recommended this limitation being altogether abolished. A contractor was employed by the Portsmouth Corporation to erect a building which when completed was to form part of an already existing electrical generating station. The original station exceeded 30 ft. in height. The trenches for the footings of the new building had been got out, and in places some part of the walls had been carried up 20 ft. No part of the new building had been connected with the existing building, but the footings had been got in right up to the old building. The applicant whilst working on the new building sustained an injury. The County Court judge had held that if the two buildings were ultimately to form one building or to form two buildings to both of which an existing party or other wall either was, or was intended to be, common, so long as building operations were being carried on in connexion with both buildings, then both were within the Act. The Court of Appeal affirmed the finding that in the circumstances of this case the man was employed on or about a building exceeding 30 ft. in height, since the new building was really an extension of the old one and the work was being carried out by the owner of both; but it is important to observe that the Court especially excepted the cases where an independent owner was erecting an independent building involving some use of a party wall. The contractor was the actual respondent, but this fact made no difference as regards the propositions above stated.

The case of Coles *v.* Anderson raises a somewhat novel point turning on the definition of an "engineering work," which includes "any work of construction, alteration, or repair of a sewer." The respondent was a contractor who had contracted with the local authority to connect a drain leading from a private house with the main sewer. The owner had constructed the drain from his newly-erected house to the edge of the footway, and one of the contractor's workmen was engaged in preparing a trench in which the pipe was to be laid connecting that drain with the sewer. Before the trench had reached the sewer or the sewer had been touched he met with an accident which resulted in his death. The Court of Appeal, reversing the finding of the County Court judge, held that employment "on, in, or about an engineering work" included the work done for the purpose of obtaining access to the sewer as well as the actual work of making the alteration in the sewer itself.

In the case of Castle Spinning Company, Limited, *v.* Atkinson a point of practice was decided. The employers, who had been paying an injured workman weekly compensation for some time, applied under paragraph 13 of the first schedule of the Act for a review of the weekly payments, and also in the alternative for their redemption by payment of a lump sum not exceeding 150*l.* The Court of Appeal held that this attempt to limit the amount to be paid on redemption of weekly payments in effect introduced a new term into the Act and could not be supported. As we have had occasion to observe before, so far the power given by the Act to employers to redeem their weekly payments by a lump sum has proved a dead letter, as the basis of computation adopted by the Courts has been the actuarial value of the weekly payments. The Departmental Committee inclined to the opinion that a maximum limit, say of 500*l.*, might be fixed for commutation of weekly payments, and this would certainly tend to make the Act more workable.

It only remains to note two cases on what is a "workman" within the meaning of the Act. In the case of Simpson *v.* Ebbw Vale Steel, Iron, and Coal Company, Limited, for the first time a claim was made under the Act in respect of a person occupying a superior position. The claim was made by the widow of the certificated manager of a colliery whose salary was 400*l.* per annum, paid monthly, and who had a house found for him and house coal also free, and who had met with his death in the mine by an accident. By section 7, subsect. 2, of the Act a "workman" is defined to be "every person who is engaged in an employment to which this Act applies, whether by way of manual labour or otherwise, and whether his agreement is one of service or apprenticeship or otherwise, or is expressed or implied, is oral or in writing." The Court of Appeal, whilst commenting on the unhappy definition as contained in the Act, have, by reference to the general tenor of the Act, and especially to the limit placed on compensation and the words "workmen" and "wages" in other connexions in the Act, excluded the applicant in this case. Lord Justice Mathew held that it applied only to workmen paid by weekly wages. Another form in which the question "What is a workman?" arises is when it has to be determined whether a man is a workman or an independent contractor. In Clasper *v.* Commercial Gas Company the applicant was employed by his father, a slater, who had entered into a contract with the respondents to take off a roof and repair it, being paid 7s. 6d. per square yard for the tiling work and the rest by time. The contractor was to engage the necessary men for the work, the same to be paid by the respondents according to the nature of the work they were engaged upon. The applicant whilst working at work to be paid by time met with an accident, yet the Court of Appeal held that he was the servant of his father and not of the respondents. The Departmental Committee made no recommendation on this

subject, yet the cases seem difficult to reconcile. The Committee appears, moreover, to have considered the case of Evans v. Penwyllt Dinas Silica Brick Company (decided in 1902) as determining the position of "buttymen" in mines and quarries who provide the labour and are paid by piece work, but this can hardly be maintained, since in that case the man had made a special agreement with his employers that he was to be entitled to compensation in the event of accident.

NOTES.

British Railway Accidents.

REFERRING to our "Note" last week on "American Railway Accidents," we may remark that the Blue-book now issued by the Board of Trade shows that the number of accidents to passengers from all causes during the three months ending September 30, 1904, includes only 32 fatalities and 757 cases of injury, and it should be noted that accidents to trains, rolling-stock, and permanent way were responsible for the injury of only 173 passengers, none being killed. Although it would be unfair to base any definite comparison on these figures, they clearly indicate a very different state of things from that prevailing in the United States. Taking the statistics for the year 1903, and making due allowance for the fact that the railway mileage of America is ten times that of this country, we find that about sixteen passengers are killed in the United States for one passenger here, while the numbers of those injured are in the ratio of about seven to one respectively.

The Llanelly Railway Accident.

THE figures in the foregoing "Note" are distinctly reassuring, and the careful inquiry made by the Board of Trade into the cause of every mishap is a valuable safeguard to the public. The report of Colonel Yorke on the Llanelly accident is a sufficient illustration of the latter point. This mishap was caused by the derailment of a train running at 50 miles an hour, and it is shown by the evidence that the leading engine, one of the tank type, was the first to leave the rails. We quite agree with the opinion of Colonel Yorke that this useful form of locomotive is unsuitable for high speeds, as, owing to the arrangement of the wheels and weights, dangerous oscillation is most likely to be established. The recommendation that the companies should appoint an expert committee to inquire into the behaviour and suitability of different engines for various speeds and classes of work is an excellent one, which we hope will be adopted without delay.

The Subsidence of Sunderland.

EXAMINATION of Ordnance bench marks from time to time shows general subsidence in some parts of the country, almost invariably in mining districts. Of course, the level of individual bench marks is affected also by purely local circumstances, such as the settling of supports in the soil, but we now refer to the appreciable sinking of levels throughout an entire district, as appears to have happened at Sunderland. In 1884 a well-known resident on the outskirts of that town announced that, as the result of observations extending over some years, he believed the site of his house had sunk bodily. This opinion was verified a year later by the comparison of levels taken by an architect, Mr. Frank Caws, with those of the Ordnance survey made thirty years before. In 1895 the North-Eastern district was re-levelled by the Ordnance surveyors and the levels of the Sunderland bench marks were then found to be lower than those taken by Mr. Caws in 1885, the differences ranging from a few inches to as much as 6 ft. Finally, in 1900, a second survey was made by Mr. Caws, and the results of this showed that the gradual subsidence of the town still continued. Local geologists have suggested that the site of Sunderland is gradually sliding into the sea, but we are more inclined to the belief that the continued lowering of the levels is due to mining operations. This view is confirmed by the general experience of the Ordnance survey, and by the fact that as a rule subsidences are not more marked on the sea coast than at places inland. It may be added that general subsidences are rarely, if ever, observable in purely agricultural districts.

Gas Explosions.

WHEN an engineer is about to repair or to do any work requiring the disconnexion of a steam pipe, a water main, or an electric conduit he is first careful to shut off the source of supply. Plumbers always follow the same rule in connexion with steam and water pipes and with electric-light wires. They generally do the same in the case of gas pipes—that is, if they are careful men. Unfortunately, some of them seem to presume upon the circumstance that the escape of a little gas will not scald, wet, or cause any direct inconvenience to the operator like steam, water, and electricity. The gas pipe is disconnected, and the optimistic plumber tries to plug or cap the end of the supply pipe without troubling to shut off the main cock, or it may be that, having shut off the supply while disconnecting and stopping the end of a pipe, he afterwards tries to replace the plug or cap by a permanent fitting at the end of a close pipe when the gas is on. In either case his misplaced confidence may not be justified by subsequent events. The explosion in Bloomsbury a few months ago and the more serious explosion last week at the Central Railway station, Glasgow, sufficiently prove the folly of trusting to good fortune when dealing with gas pipes. At Glasgow four men were seriously injured and about 100 ft. of a solid concrete platform was blown up. It is simply amazing to think that such risks are run merely to save the trouble of turning a cock.

Overhead Mains.

MR. G. L. ADDENBROOKE read a paper on "Overhead Mains for Electric Distribution" to the Institution of Electrical Engineers last week. This method of transmitting power, although used extensively abroad, has been practically prohibited in this country until quite recently. The lecturer had an easy task in proving how much more economical overhead mains would be than the present system of underground mains. He showed that for the same capital cost the power companies could supply at least three times the area if they used the overhead system. As a compensation for the unsightliness of overhead mains, he mentioned that they would be the means of abolishing much smoke and dirt and heavy coal traffic on the roadways. By bringing a convenience of town life, also, into the more open districts, they would be an aid in repopulating the country. It was stated that one of the most desirable objects at the present time was the extension of tramways into the country, and, more particularly, the construction of inter-urban tramways. The permission to erect the required mains on poles, as in the United States, would enable many tramway companies to extend to much greater distances than they can at present. By simply painting the poles green or grey, it was stated that they could be made very unobtrusive. In discussing whether the supply of power by overhead mains was trustworthy or not, the lecturer was more convincing. He pointed out that towns like Rome, Berne, Milan, Buffalo, etc., had been dependent for many years on electric energy supplied over distances varying from fifteen to thirty miles by overhead mains, and, with the exception of difficulties in connexion with lightning arresters, which had now been overcome, the service had been entirely satisfactory. Practically no difficulties had arisen from wilful damage, as people abroad had a wholesome dread of shocks. The paper is a timely one, and there are, no doubt, cases where the use of overhead mains might be permitted with advantage to the community.

The Weight of a Crowd.

IN the current issue of the *Proceedings of the American Society of Civil Engineers* Professor Johnson presents some additional data which surpass the results previously given by him and quoted in our "Note" on p. 82. In the later experiments forty students with an average weight of 158·8 lb., assembled in the test chamber, resulted in the load of 176·4 lb. per sq. ft. Then forty men weighing 163·2 lb. each were put in the pen, with the resultant load of 181·3 lb. per sq. ft. We are told that the latter lot were "all undergraduate students of engineering," but it is quite probable that architectural students would have acquitted themselves equally well. From figures obtained by Dr. Sargent, of Harvard Gymnasium, with the aid of a planimeter, it appears that the cross-section of a man standing 6 ft. 3 in. high may easily reach 117 sq. in., with a corresponding weight of 177 lb. This gives 218 lb. per sq. ft., which can be regarded as the maximum unit load of a crowd. In view of the photographs and data now before us, it is impossible to avoid the conviction that live loads of 170 lb. per sq. ft. are by no means unlikely, and that loads of from 130 lb. to 140 lb. must often occur in crowded buildings. Further, as Professor Johnson points out, the careful designer will remember that 180 lb. per sq. ft. is well within the range of probabilities.

Pictures by M. Le Sidaner.

AN exhibition entirely of pictures by M. Le Sidaner might be expected to be somewhat monotonous, for he has been

known so far as the painter of one effect, that of old buildings painted as if seen through a mist. The collection of his works at the Goupil Gallery shows, however, a little more variety than might have been expected; and in one work, "Mon Jardin" (25), which is the more effective from its contrast with the style of the others, he shows that he can, when he chooses, paint a bright and true effect of open-air daylight. He is a very gifted artist, and if he can only shake off the trammels of his particular mannerism he may do great things. Among the works in this exhibition that have a special charm, besides the one already mentioned, are "Impression de Bruges" (1), a study of a girl's head with a dim background of city scenery just indicated; "Les Lampions" (5), a study of the effect of Chinese lanterns in a grey twilight; "Barques de Pêche, Coucher de Soleil" (3) and "Canal à Bruges" (6), two very effective scenes in warm and in cold light; "Le Petit Pont de Fer, Gisors" (19), a remarkable piece of colour where a green-painted iron bridge spans a dark moat over-hung by trees; "L'Automne" (22), a river scene also very fine in colour; "L'Escalier" (28); "Le Petit Pont Blanc" (29), where the old houses are very effectively treated. The artist is not so successful in architecture of a more important class; in his "Chartres" (16) the cathedral is badly drawn, and in "Beauvais" (12) the cathedral fails to show its scale through not being sufficiently set back in perspective from the small house in the foreground. The trick of effect of indicating lights in the windows of a building in an otherwise grey twilight scene is repeated over and over again; it is a very cheap trick, easily imitated by artists of far less ability. The large decorative picture entitled "Le Printemps" (13) shows the artist in a new light, as a painter of figures, which however are rather stiff, though the composition is pleasing as a whole.

The Leicester Gallery.

THE collection of small works by Mr. Austen Brown, Mr. Cameron, and Mr. Coutts Michie, at the Leicester Gallery, though very unequal, contains some things of great interest. Mr. Brown's "Master Baby" (1) is a bad beginning, for it is a baby whose face is not modelled and whose eyes are only blue dots. There are some interesting though rather rough landscape studies, but the eye is caught at once, at a distance, by one small work—"Potato Harvesting, October evening" (8), which one at once recognises as a real picture in the full sense of the word; one of those inspirations in composition the charm of which cannot be defined in words. Mr. Brown should work this out into a large picture; it has the makings of a great work. Mr. Cameron's style as a painter is heavy and sombre, he is essentially a black and white artist; but "St. John-street, Stirling" (20), is a powerful composition. Mr. Coutts Michie's landscapes include two very fine things, "The Last of the Harvest" (25) and "A little Farm" (27); the style is rather too "vigorous" and there is little indication of detail, but for composition and aërial effect they are admirable. "Romance on a Haystack" (31) is a pretty sketch of two children seated on the top of a haystack in the foreground of the picture, but the perspective lines of the landscape do not give the idea of a foreground elevation sufficient to account for such a very high horizon as the picture shows.

Dudley Gallery Art Society.

THE forty-first exhibition of water-colours by the Dudley Gallery Art Society consists very largely of the kind of works which represent a certain formal excellence in water-colour painting without any distinctive character. Drawings like Mr. Hereford's "St. Michel, Normandy" (8), and others remind one too much of the kind of art which Rowbotham's and Richardson's works in the Society of Water Colours used to represent a good many years ago; works in which foreground and distance seemed to be prearranged on a received system of colouring, always with a harmonious and pleasing effect, but an effect of the atelier rather than of nature. Mr. Sylvester Stannard's larger and more ambitious subjects in the present exhibition have the same defect; they look like made-up effects. The best things in the gallery are among the more slightly executed works in which we find breadth of style and an original conception of colour and composition; as in most of Miss Margaret Bernard's drawings, Mr. Wells's "A Moorland Stream" (91), and Mr. A. Stevens's "Early Morning at Sonning-on-Thames" (146). Miss Rudd's two small views at Richmond, Yorkshire (47 and 58) show originality of style. Among others we may mention various works by Mr. G. Marks; Mr. Coleridge's "Thames above Windsor" (234) and "Worn-out Vessels at Rye" (242); Mr. Duassut's "Old Cottage near Baddon" (246) and "A Wiltshire Cottage" (253); Mr. Stormont's "A Sand-built Ridge" (78); Miss Jex Blake's "Meadows between Winchester and St. Cross" (164); Mr. David Green's "Thursley Common" (168); Sir W. Eden's little sketch of "Pisa" (178); Mr. Dixey's "Spring-time, Wargrave" (232); Mr. Roscoe's "A Village Street" (240); and Miss Martineau's "The Captain's Road" (280). Architectural subjects are neither largely nor very well treated in the collection; Mr. Donisthorpe Donne has a careful but not very effective drawing of "Saracen Architecture in the Temple Enclosure, Jerusalem" (5); Mr. Berenger Benger illustrates "The North Door of St. Mark's" (154); and Mr. Mildmay exhibits a picture of "Santa Maria della Salute" (123) in which that rather too celebrated building is worse treated than we have ever seen it in painting.

The Modern Gallery.

THE gallery under this title has changed its home for the better, and its address is now at 61, New Bond-street. The old rooms were very deficient in day-light, and the change to the two well-lighted ground floor galleries at No. 61 is in every way an advantage. The new gallery is at present filled with a collection of paintings by Mr. Andrew Colley, a clever follower of the most modern French school in painting, to which he brings a degree of talent which might have been better employed in another and better manner of painting. His scenes in Venice are the best things in the collection. "Towards the Lido" (8) is a powerful piece of open air effect and sunlight on water; but, as in so many landscapes of this school, the same texture runs through everything—water, buildings, and sky; the mooring posts in the foreground are there in perspective position, but do not stand out from the background and the water as they would in reality. In "Grand Canal, Venice" (26) there is a brilliant effect of reflected light on the water, which seems to flash in your eyes, but everything else is sacrificed to this. There are very good compositions among the landscapes, but they are not like nature; they do not give the impression of nature; they are arrangements of paint only; and the one called "An Old House, Laren" (15), is simply a kind of paint-pie, colour planted all over the canvas in streaks and ridges. Does anyone see nature like that? If so, his optic nerve must be diseased. That there is a great deal of ability in these pictures we admit; but it is ability misdirected, and the result gives us little pleasure.

MAGAZINES AND REVIEWS.

THE *Art Journal* contains an article by Mr J. D. Crace on "Painted Decoration," in which the subject is treated with especial reference to the relation of such decoration to the architecture. The principle which Mr. Crace lays down is that the quality which most makes for dignity and beauty in architecture is repose, which quality comes of a sense of firm and well-balanced stability; whence it follows that any colour used in beautifying the interior of a building must be used in such a manner as to emphasise the appearance of stability, by adjusting the value of the colour to its proper position in the scheme of expression. And he divides buildings into two classes, those which possess strongly marked structural features in the mouldings of the architecture, and those which, like the Sistine Chapel and the Arena Chapel at Padua, are nearly destitute of such features and are empty shells until the decoration is applied to them. He suggests, and we quite agree with him, that Giotto took the right course in giving strength to the system of decoration by dividing off his paintings with strongly marked bands of ornamental border which suggest structure, while Michelangelo painted apparent architectural features where none existed; certainly a totally false principle of decoration. The Sistine Chapel is a great set of paintings, but not an example of a true decorative scheme. As to buildings which are already marked by boldly modelled architectural features in relief, we have always felt that colour ought to be very sparingly applied to moulded surfaces, to bring out one member or to throw back another; for mouldings tell by contrast of light and shadow; to colour them strongly and over their whole surface is apt to destroy the light and shadow effect, as the strong colouring in some mediæval churches, when it was new, must certainly have done. Mr. Crace does not press this point, though he does say, in a general way, that in that case the painter's first duty is to the building, and that no part of such a building is to be looked at as a mere canvas for his subject, or a frame for the work he exhibits there. The article is a very thoughtful and considerate one, and should have the attention of those who are concerned with the decoration of buildings. The frontispiece to the *Art Journal* is a good reproduction of Gainsborough's beautiful portrait of the Hon. Mrs. Graham.

In the *Burlington Magazine* is a valuable article by Mr. Lionel Cust on "Paintings by Lucas Cranach," being No. 6 of the articles headed "Notes on Pictures in the Royal Collections." Miss Cartwright's article on Drawings by Millet in the collection of the late Mr. J. S. Forbes is accompanied by some fine reproductions of portrait heads by Millet, among which that of Théodore Rousseau is

particularly interesting, though we cannot help thinking that the hand (which is raised to the forehead) is rather too small in comparison with the head. His portrait of his second wife, seated and sewing, is also a fine study, with a suggestion of Rembrandt about it. Mr. Jourdain concludes his articles on the lace collection of Mr. Blackmore with a chapter on "Milanese Laces." The style of the examples given does not go to recommend this school of lace; it is too open and too ragged in line. Mr. Clouston, in his fifth article on "English Furniture Makers," deals with the work of the Society of Upholsterers and Cabinet-Makers, which published in parts a book entitled "Upwards of One Hundred New and Genteel Designs." Mr. Clouston does not deny that the book is "full of artistic failures"; and if the designs illustrated are fair specimens of the whole, we cannot be surprised at the comment. The only good one is the Desk and Bookcase which forms illustration No. 6; and that is good rather in a negative than a positive way, being simple in its lines and avoidir g the gimcrack ornaments of the other designs.

The *Art-Workers' Quarterly* includes among its articles on methods of working one on "Chasing and Embossing on Metal," by Mr. John Williams; "A Lesson on the Making of Honiton Lace," by Mr. L. A. Reynolds; and one on "Torchon Lace": what this manner of lace is we do not profess to know. Mr. E. F. Strange contributes the first of a set of articles on "Ornamental Lettering," dealing in this article with capital letters, of which some old examples are given, which however are more remarkable for elaboration and richness than for real beauty of line. There is an article on some furniture made by Mr. A. Romney Green, with a short profession of his faith by the artist, from which we quote the following remarks, with which we are completely in agreement; they bear especially on the question of mechanical work and repetition of designs:—

"During the progress of a work of art a hundred opportunities occur, suggested sometimes by the idiosyncracies of the material, sometimes by the happy inspiration, or even by the mistakes, of the craftsman, for improvements on the first conception, for just those little individual freaks or masterly touches which make often the whole difference between success and failure. A detailed and complete design, that is to say, will seldom be exactly carried out even once by a true craftsman; never, except under compulsion, a dozen or a hundred times. That any design should be exactly and often repeated means not only the vulgarisation of that design: it means a loss to the craft of those continual experiments and slight variations which are necessary to the evolution of the fittest types and the building up of a sound tradition. To the loss in this way of our tradition in furniture making must be mainly attributed not only the badness and ugliness of our modern trade furniture, but the very imperfect results that have yet been achieved even by the handicraft movement. In no art can a good tradition be completely established or revived by the efforts of one generation; but it is something to know that we are already making progress in the right direction."

A dresser for an angle position, designed by Mr. Curtis Green, shown on page 19, is a very good piece of solid and characteristic work, and Mr. Romney Green's chairs (page 29) are admirable. It is necessary to name the pages, as the illustrations are mostly scattered about without reference to the text, according to an irritating habit prevailing in more than one modern artistic journal.

In the *Berliner-Architekturwelt* the building for the Royal Land and Estates office (that we take to be the meaning of "Land-und-Amts-Gericht") in the Neu Friedrichstrasse is a curious building in a kind of very corrupt classic style which it is impossible to label exactly; we do not complain of it on that account, however, but the detail is bad and tortuous and the whole thing too confused, though it is not without a certain impressiveness. Herr Otto Schmalz is the architect. The Victoria-Luisenschule at Wilmersdorf, by Herr Herrnring, is a curious combination of mullioned Gothic windows with modern Romanesque; the result is original but not captivating. The best thing among the illustrations is a large bowl or centre-piece, of architectural character, probably silver; on opposite sides two nude female figures lean in graceful attitudes against the rim, back to back, supporting themselves on their hands placed behind them on the rim. This is the work of a sculptor, Herr Otto Richter, of Berlin. We also notice among the furniture designs some things designed by an architect, Herr August Endell, for a private house in Berlin, of which the dining-room and bed-room pieces, with their severe lines and bits of inlay, are very good, and show the simplicity of character which is too often wanting in modern German furniture.

A technical review called *Concrete and Steel** has recently appeared in Germany in a new form as a monthly paper, with the sub-title of "An International Organ for Concrete Building and for Progress in Construction and Building." The paper is edited by Dr. Ing. Fritz von Emperger, and published by Wilhelm Ernst & Son, Berlin. In an introductory notice the editor explains that the review "will now embrace a larger field of activity, and take concrete building in general under survey. It is to a large extent the successes achieved with concrete-steel that have given impulse to the energetic striving after progress in other branches of building and construction. All such matters will be discussed here, but particularly those that come under the name of 'concrete.' In this way *Concrete and Steel* hopes to enlarge the circle of its readers, at the same time attaching more surely to itself all old friends and contributors." The present number contains an article by the editor on "The History of Concrete-Steel in Belgium," a long article on "The Streets of the Future," an account of "New Methods of Laying Foundations," besides other articles and reviews, etc.

The *Architectural Record* (New York) has an article, by Mr. Chas. de Kay, on "Villas all Concrete," from which we gather that the American mind is beginning to rebel against the "shingle" house, unpainted and unstained, but left to weather into colour. It is admitted that it does sometimes take a delicate and picturesque colour, but in other cases its effect is said to be dull, and there is a longing for something brighter, and this is being sought for through the introduction of concrete cottages with cement or stucco facing. Judging from the illustrations, it would seem that some of the American architects have contrived to treat this kind of cottage in a very picturesque manner.

Technics contains an illustrated article by Mr. Harold Busbridge, on "Some Common Defects in Timber, and their Causes." Of course, as the author points out, many features of wood regarded as defects by the timber merchant are the natural result of the growth of the tree. Some of these can be avoided by careful selection, and others may be removed entirely. The first group of defects considered includes such as are due to pith, sapwood, and knots, and although these cannot be altogether eliminated, the extent of the first two can be materially reduced by selecting healthy and well-matured trees for felling, and large knots can be prevented from forming to some extent by lopping off branches and shoots from the stem when the trees are young. Other defects, not essential features of a healthy tree, include shakes and "decayed-heart," due to old age, and other forms of shake consisting in the partial or entire separation of annular rings of wood, the origin of these. Decayed knots and "rind-gall" are faults which generally result from mechanical injury to the tree, but transverse shakes, found chiefly in foreign hard woods, and spiral growth, are defects over which no control can be exercised. "Wandering heart" and "inbark" conclude the category of defects, some of which are common and others comparatively rare. Nothing can be done by the architect or builder to prevent any of these, and his care must be to avoid timber in which they exist, a task requiring knowledge of the kind conveyed in this article. Mr. Brysson Cunningham, B.E., A.M.Inst.C.E., has a useful contribution on "Mortars and Cements," dealing briefly with lime mortar, cement mortar, Portland cement, and Roman cement. After reviewing the chemical and theoretical aspect of the subject, the writer devotes attention to the adaptation of mortar and cements to practical purposes. Two interesting curves show the compressive strength of mortar consisting of 3½ parts of hydraulic lime and 5½ parts of ashes, and the increased strength of such mortar when hardened in water. Another noteworthy curve on the same page demonstrates the fact that ash mortar is considerably stronger than mortar of the same proportions, in which 1 part of the ashes has been replaced by sand. Taken alone these curves may give rise to erroneous impressions as to the comparative resistance of ash and sand mortar, and they would be more useful if supplemented by a third curve, giving the strength of sand mortar mixed in the proportions mentioned. The article concludes with some notes on the testing of Portland cement, and a brief reference to Roman cement. "Recent Gas and Oil Engine Devices," by Mr. Thomes Holgate, M.Inst.C.E., is merely a series of descriptive notes on some internal combustion motors, exhibited at the Earl's Court Exhibition. These engines show generally that development is proceeding along the lines of higher compression, more convenient means of ignition and starting, and, in large engines, of water-cooling for the exhaust valves. Advances in such directions have undoubtedly brought about considerable economy in fuel and greater uniformity of power generation. Several electrical subjects of indirect interest to our readers are treated in the present issue. Among these we may specially mention one on "Boosters," by Mr. Harold H. Broughton, the booster being a machine applied to raise the voltage in electrical circuits for feeding purposes, and also for balancing the potential in three-wire systems for the distribution of current. The diagrams in this article incidentally make clear the principles of the tree-wire system, which, somewhat curiously, is seldom explained so fully as might be desired in text-books on electrical engineering. Further instalments are given of the serial articles on "The Electro-Magnetic Theory," by Mr. Edser; "The Elements of Chemical Engineering," by Dr. Grossmann; "Insulation and Insulators," by Mr. Symons; and "Electro-Chemical and Electro-Metallurgical Industries," by Mr. Kershaw.

The *Quarterly Review*, a very good number in a literary sense, we must pass over with this general compliment, as it contains no article on any class of subject that comes within our province.

Macmillan contains an article on the subject of "Art and the Athlete," by Mr. Martin Hardie, the theme of which is that "we are an athlete nation, but we have no athletic art"; no art, that is to say, which makes a study of representing the human being in the full strain of an athletic action. There are some exceptional instances. Mr. Hemy's "Youth" was in a sense an athletic picture; and we have seen at least one picture of an eight-oar in full swing. We have never seen a good picture drawn from cricket, football, or golf; lawn tennis has had its painters, but then there is the question—is lawn-tennis in the true sense "athletic"? Mr. Hardie complains that our sculptors make no attempt at the kind of thing that Greek sculptors did in their day and with their athletes, maintaining that golf and football present just as effective attitudes as some of those of celebrated Greek statues. So they do, but it is that troublesome question of costume again; the Greek sculptor had his athlete nude. In the case of cricket we can imagine a fine statue being made of a fast bowler in the full swing of his delivery. The batsman does not lend himself so well to artistic treatment; the bat is an awkward instrument for sculpture. But the subject is worth serious consideration. Mr. Hardie thinks there would be more attention paid to athletics in sculpture if the sculptors were athletes. He seems to have been looking them up in *Who's Who?* and mentions five of the most eminent of our sculptors who have "no recreation," and two others who own to nothing more strenuous than singing, bicycling, and gardening. Greek sculptors were certainly more in touch with the athletic life of their day than ours are, but it must be remembered that the life itself was different, and lent itself better to artistic treatment. There ought however to be more effort at the sculptural treatment of athletics than there has hitherto been, and Mr. Hardie may have done a service in calling attention to the subject.

The *Century* gives a colour reproduction of a fresco recently discovered at Pompeii, representing the origin or founding of Rome. It is described in an article by Professor Ettore Pais, the present Professor of Ancient History in the National University of Naples, but formerly Director of the Naples Museum, and who discovered the fresco. It is a mystical landscape with a small temple at the top of a hill. Mars and the chariot of the sun appear in the story; a figure slumbers on the ground near the temple; at the foot of the hill are seen Romulus and Remus and the wolf. Hermes points them out to another figure, a goddess of

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* "Beton und Eisen." Internationales Organ für Betonbau, neuere Bauweisen und Bauwerke. Herausgeber. Dr. Ing. Fritz von Emperger. Verlag von Wilhelm Ernst und Sohn, Berlin.

some kind, who accompanies him. Of the general intention of the painting there can be no doubt, though there may be differences of opinion as to the meaning of particular figures. In the same issue is an account of the new system of parks which is now being laid out at Chicago, and which seems to be a remarkable enterprise.

"The commissioners had started out to provide simple parks; but the conditions showed that such places, to be serviceable in a city where seventy per cent. of the people live in contracted quarters, must be more than breathing-spaces with grass, flowers, trees, and perhaps a pond and a fountain. They must afford gymnasia, libraries, baths, refectories, club-rooms, and halls for meetings and theatricals. They must be useful day and evening, summer and winter. The public must receive a continuous and ample return upon its investment—daily dividends in happiness, health, and progress. Thus the idea of the field-house, or neighbourhood-centre building, had its birth. Every field-house contains a gymnasium for women and girls, provided with apparatus, shower-bath, plunge-bath, and lockers. In another part of the building is a like gymnasium for men and boys."

There are refectories, club-houses, and a large open air swimming pond, with dressing-boxes for men and women. The whole scheme forms an example that might well be followed by other cities.

In the *Pall Mall Magazine* Professor Nispi-Landi, the Government Inspector of Italian National Monuments, writes an interesting illustrated article on "The buried treasures of the Tiber," which have been the object in recent times of special exploration. The number and the value of works of art which have been fished up from the bottom of the river seem to be extraordinary. Every shovelful of the sand of the river, we are told, contains something valuable. Many of these things, we have no doubt, got into the river through accident; but there is a record of a great throwing over of valuables and works of art in the middle of the VIth century, when the Goth was at the gates; among them was said to have been the seven-branched gold candlestick of the Arch of Titus, with other spoil of the Hebrews; and the writer of the article is convinced that it is still in the Tiber, and may be found. Illustrations of a marble and a bronze figure (an Apollo and a Bacchus) found in the river, are given, as well as other less important works. An article under the title "From Steam to Electricity" gives a popular account of the work going on in preparing the Underground Railway for electric working, with some illustrations of the power-houses, the new rolling-stock, etc. We are informed that under the new arrangements the carriages are to be all of one "class," *i.e.*, the distinction of first, second, and third class is to be done away with. We can only say that we greatly regret to hear it, and we think that, from the point of view of the comfort and convenience of the public, it is a great mistake. That it may be more convenient to the railway company is quite possible.

In *Harper* Professor Rutherford writes an article suggesting that radium is the cause of the earth's heat. We must leave it to the reader of the magazine to follow out the Professor's reasoning. The result of it is consoling, inasmuch as, on the theory that radium may be the cause of the heat both of the sun and of the earth, he promises something like an eternity of heat for both luminary and planet, instead of the ultimate degradation of both to a state of inanimate cold, which has been the rather disheartening creed of recent science.

Mr. W. H. Shenstone, F.R.S., who wrote last month in the *Cornhill* on the method of weighing the earth, writes what may be called a companion article this month on "Weighing Atoms." The article is stiff reading for a general magazine, but it will be a very useful one to the readers who will give themselves the pains to follow out carefully the exceedingly recondite reasoning by which is estimated the weight of things that we can neither see nor feel.

In the *Antiquary*, the Rev. J. B. McGovern commences a series of articles on the much-vexed subject of the round towers of Ireland. If he can lay the ghost of this controversy he will have accomplished something. He is (so far) in favour of the Pagan origin of the towers, and hews lustily into the Christian believers in "tradition." Mr. Giberne Sieveking contributes an article on "Some old French doors and their handles." The article is accompanied by some illustrations from photographs and sketches. The most remarkable thing mentioned in "Notes of the Month" is the recent discovery, in a garden at Birkdale (Southport), of an Egyptian sepulchral tablet, estimated by two learned Egyptologists connected with the British Museum, to whom it was submitted, as being a genuine Egyptian inscribed stone of the date of about 600 B.C. It was accidentally discovered buried deep down in the garden. Birkdale is a place of very recent growth, so that it is hardly possible that it was a possession of any previous owner of the house. How did such a thing come to be buried in what was probably at the time a field or a common in Lancashire?

In the *Revue Générale* M. Arnold Goffin brings to a conclusion his essay, "La Legende Franciscaine dans l'Primitive Italien," an essay marked both by research and a fine enthusiasm for the subject, considered not merely as a chapter in the history of painting, but as an illustration of the life and feelings of a past age.

In the *Gentleman's Magazine* an article by Mr. H. J. Webber, under the title "Some Fragments of Stone" is a short popular sketch of the history of the Elgin marbles. This may catch the attention of readers who have thought little of the subject, and open their eyes to it. But why call that "stone" which is marble?

The *Church Builder* (quarterly) gives an illustration and description of the small church at Clevedon (Somerset), doubly interesting—in itself, and as being Tennyson's "In Memoriam" church, where is the memorial tablet to "A.H.H." and others of the Hallam family—

"And in the dark church like a ghost
Thy tablet glimmers to the dawn."

For some important necessary repairs, including new oak roofs to nave and aisles, the church is in the safe hands of Mr. Carõe.

THE ARCHITECTURAL ASSOCIATION.

AN ordinary fortnightly meeting of the Architectural Association was held on Friday last week, in the new premises of the Association, Tufton-street, Westminster, Mr. Guy Dawber, President, in the chair.

The minutes and nominations having been read by Mr. Louis Ambler, Hon. Secretary, the following gentlemen were elected members of the Association, *i.e.*, Messrs. J. M. H. Watson (London), C. E. Lovell (Gravesend), R. C. Coulson (Denmark Hill), N. Jewson (Bayswater), T. D. Dixon (Sydenham Park), J. Filtness (Richmond, Surrey), and A. A. Fillary (London).

The President announced that the following members had rejoined, *i.e.*, Messrs. James Lemon and A. S. Millar.

On the motion of the President, a vote of condolence was passed to the widow and relatives of the late Mr. John Leaning, who was well-known to the members, as he had taken the Quantity Surveying Class for some years.

Mr. Ambler announced the donation to the Library of a copy of "Building Materials," by G. A. T. Middleton, presented by Mr. B. T. Batsford, and a vote of thanks was accorded to the donor.

Mr. Ambler proposed a vote of thanks to Mr. H. P. Adams for kindly allowing members to visit, on January 28, the Law Society's Hall in Chancery-lane, and to Messrs. Runtz & Ford for permission to visit on the same date the new Gaiety Hotel and Restaurant in the Strand.

This having been agreed to,

The President announced that the proposed smoking concert in aid of the Building Fund had, for various reasons, been abandoned.

The President said it was his pleasing duty—a duty in which they would all join very heartily—to propose a vote of thanks to their old friend, Mr. W. G. B. Lewis, for the work he had done in arranging and supervising and almost himself hanging the casts around the walls of the museum. This had been no light task, and with Mr. Lewis it had been a labour of love. Mr. Lewis had devoted his services ungrudgingly for nearly a year in this work, and although the task was not completed, Mr. Lewis had carried out a large part of it, and the members owed him a very deep debt of gratitude, and he had much pleasure in putting the vote to the meeting.

The vote of thanks having been heartily agreed to,

Mr. C. S. Spooner read the following paper on

Church Fittings.

What do we include in church fittings? I do not much like the word, it may be understood to cover a very wide field, including everything except the actual structure of the building. I take it to mean the furniture and ornaments of a church, and such decoration as is connected therewith. The furniture for a church differs from house furniture chiefly in the difference of scale and the different use to which it is put—these two conditions will, of course, materially affect the design, but there need not be any other difference. Church furniture may be of any shape and of any material, and it may be decorated in any way that pleases the fancy—provided always, of course, that it is in good taste, suitable for the solemn and sacred purposes for which it is used, and also that it complies with the rules and directions of those in authority.

What do we mean by a church? I take it that we mean a building set apart for the worship of Almighty God, and I must still further restrict the meaning, for the purposes of this paper, to the worship of the Christian religion.

For our purposes to-night we may think of Christians as divided into two schools of thought—the one, while by no means neglecting or under-rating the office of the preacher, looks upon the Sacrament of the Holy Eucharist as the central act of worship and centres everything round that act; the other school, while not neglecting prayer and praise, looks upon the sermon as all-important. Of course, each school is sub-divided—the latter very much so indeed—but these sub-divisions do not concern us here. Each of these schools keeps, more or less everywhere, its own general arrangement of churches. In the first the altar is always the central and chief feature of the church, and in the second the pulpit takes that position.

Now, it is with the furniture and ornaments of the church of the first school of thought to which I have referred that I propose to confine myself. I must still further clear my ground. This school of theological thought is, as we all know, roughly divided into three, which divisions are respectively known as the Orthodox Church of the East, the Roman Catholic Church, and the Church of England.

Differences in the rights and ceremonies of these three bodies make some differences in the furniture and ornaments of the churches belonging to each, and it is with those of the Church of England that I am chiefly concerned to-night.

There is, unfortunately, some difference of opinion about the laws and rules affecting the furniture and ornaments of the Church of England, in spite of the clear directions in the ornaments rubrick, which is placed in a prominent position at the beginning of the Prayer Book, and which runs as follows:—"And here it is to be noted that such ornaments of the church and of the ministers thereof at all times of their ministration shall be retained and be in use, as were in this Church of England, by the authority of Parliament, in the second year of the reign of King Edward the Sixth." It must be remembered that the word "ornaments" "is not confined, as by modern usage, to articles of decoration." . . "All the several articles used in the performance of the services and rites of the church are ornaments."

The Alcuin Club has issued a very valuable tract on this subject, by Mr. J. T. Micklethwaite, in which he points out that the second year of King Edward VI. began on January 28, 1548 and ended on January 27, 1549, and that, as the first prayer book could not, according to the Act authorising it, be used by the authority of Parliament earlier than February 11, 1549—*i.e.*, three weeks after it had received authority—the rubrick refers to the ornaments that were in use before the first prayer book of King Edward VI. Mr. Micklethwaite, after giving very convincing evidence for his opinion, proceeds to give a list of the ornaments that were in use in the year 1548, and he says:—"I cannot hope that nothing will be left out of it, but I will try that nothing shall be put into it for which reasonable proof cannot be given." Such a list by such an authority is, I think, useful to us. I do not propose to give the whole of the list, there are many things which have become useless—*e.g.*, crescents for lights and the chafing ball—and there are several which seem to me to be outside our subject.

But it is well to know, on the authority of a learned archæologist, what furniture and ornaments are included in the rubrick which regulates these things for the Church of England.

Furniture and Ornaments included in the Rubrick.

The list of things runs as follows:—Images and pictures; the high altar; minor altars; the table or reredos; the altar shelf; the canopy of the altar; the upper frontal or dorsal; the nether or lower frontal; the frontlet; the curtains, riddels, or costers; carpets; tapestries; lamps; the altar cross; the altar candlesticks; standing candlesticks; the chalice; the paten; the cruets for wine and water; a box for altar breads; the censer, etc.; two basins for washing the hands; registers—viz., a thin strip of silver with ornamental ends, for use as a book-marker; the sackering bell; processional cross, etc.; alms basins; the lectern for the Gospel; the lavatory, called in Latin *sacrarium* or *piscina*; the sedilia; screens; the rood loft; other lofts; the rood; stalls and desks; the great lectern; lectern cloth; lesser lecterns; the organ; chanters' stools, etc.; pews; pulpit; a desk for books; tables with inscriptions; the font; the font cover; the Litany desk; a cross for funerals; the bier or hearse, standing candlesticks, etc.; banners, standards, or streamers; the dedication crosses; bells in the steeple, the clock and chimes. To this list we might add certain things as being required in our churches nowadays, all of which have been authorised by the proper authorities. Here let me remind you that nothing should be put into a church without the authority of the bishop of the diocese—the parish priest, be he rector, vicar, or curate-in-charge, is responsible to the bishop for everything put into the church or churchyard:—Some means of warming the church; some means of lighting the church at nights or on dark days; notice boards; hymn boards; alms boxes; a bookcase for devotional books; cupboards or boxes, either in the vestry or in the church, in which to keep the frontals and altar linen, the vestments, the candles, and other things; a safe, preferably in the priest's vestry, if there be more than one vestry, in which to keep church plate, the alms, until the money is put in the bank, the registers, and other valuable things.

This is a long list, and there is, no doubt, a great deal to say about many of the things included in it.

Let us, therefore, first consider the most important.

The Altar.

The first and most important thing in the church is the altar. It is one of the things *essential* in the worship of the church. Most of the other things are conveniences, but some sort of altar, together with a plate and a cup, is absolutely indispensable. Besides this, on account of the sacred use to which it is put, churchmen have always desired to make the altar the most beautiful and most honourable thing in the building. In a large building the problem is how to do this, because, even if the altar is as large as possible, it still remains a small thing relatively to the building. The two ways which have centuries of precedence are, I think, still the best. First, to place it on a raised platform, reached by a flight of steps, and then, if possible, to put a canopy over it, or, at any rate, some rich background. All those things in the list, such as the reredos, the canopy, the upper and nether frontals, the carpets, tapestries, and the standing candlesticks, are for this purpose.

The altars in the churches throughout England in the year 1548 were nearly all made of stone. Mr. Micklethwaite says, in the tract to which I have referred, that "there can be no doubt that wooden altars were *sometimes* used in England in the XVth century, and they were not mere makeshifts, but things of some cost." And, further, "The destruction of the old altars and the substitution of movable wooden tables, which seem to have been set up at the time of the celebration of the Eucharist, appears to have been begun in the diocese of London by Dr. Ridley, in the fourth year of King Edward." "The real contest in the XVIIth century was not about the material so much as the position of the altar, and that was finally set at rest after 1662."

All through the XVIIIth and the first part of the XIXth centuries stone or marble altars were by no means uncommon, sometimes they were fixed to the walls or floor, and old stone altars still remain in Arundel Church, in Gloucester Cathedral, and elsewhere. Of late years, however, some of the chancellors of the dioceses have objected to altars of stone or marble. I think this is regrettable and curious, considering the words of the rubrick.

I think everyone will agree, that, although the altar is seldom seen, it should nevertheless be made of the very best quality of whatever material may be used, and the construction should be good and handsome.

It is important that the altar be of sufficient size, and, in order to give it due importance, the larger it is the better. No considerations of utility need limit the length, but anything shorter than 5 ft. is likely to prove inconvenient. I think it is a safe rule to make it as long as possible, so that it will look well and be in good proportion with the sanctuary where it stands. Utility will regulate both the height and the width. The priest *stands* at the altar during the whole of the celebration; it must, therefore, be high enough so that he may not be obliged to stoop unduly at any part of the service. Although men vary considerably in height, it has been found by experience that 3 in. is the limit of variety in the height of an altar. Anything lower than 3 ft. 3 in. is most inconvenient for a tall man, and 3 ft. 6 in. is as high as a short man can possibly use. I have made some altars 3 ft. 6 in. high, and the clergy who use them tell me they find that height convenient; but it is the extreme limit, and I think, perhaps, 3 ft. 5 in. is the most convenient height for an altar.

It is important not to make it too wide. The corporal is usually about 20 in. square, and a little more width than that is needed. I think 2 ft. is as narrow as an altar should be, and 2 ft. 3 in. is a better width. Unless the altar shelf (when it is intended to have one at all) stands on the altar, 2 ft. 6 in. will be found to be wide enough for any altar.

Altars should be quite simple in design, with no elaborate mouldings or carvings in high relief. It is essential that the edge of the top be almost square, the angles should be just softened, and, if it is desired to enrich it with mouldings, they should be sunk into the flat edge, but on no account must such mouldings turn over on to the top of the slab. Unless the top of the altar is perfectly flat and smooth right out to the extreme edge, there is a risk of the sacramental vessels being upset. There is also a danger of irregular projection or points, such as might occur in high-relief carving or open tracery, catching in the vestments of the celebrant. Such risks should not be run. Moreover, ornament of this kind is out of place. It is better for altars to be quite plain in design, but of handsome material, and to reserve for the frontals such ornament as funds will permit.

The top or slab should be thick and heavy—a slab of stone or, better still, marble, carried on five pillars is perhaps the best general form—or if wood is to be used, then, I think, it should be framed together with five or more legs braced at the bottom, and carrying a thick top, which (so that it may not split or warp) should be framed with flush panels. I have myself made wooden altars with framed fronts, ends, and backs; but I now think that is not the best way, and I recommend the form of a heavy table as being altogether better.

What I have said about altars applies, I think, to all, whether a high altar or side altars, with one exception. The minimum length of 5 ft. is not enough for a high altar—*i.e.*, an altar which may be used for a high celebration—the *minimum* length in this case should be 8 ft., as the celebrant, the deacon, and the sub-deacon stand side by side in certain parts of the service, and anything shorter than 8 ft. looks undignified. In churches where there is only one altar it is better to make it the high altar, and a length of 8 ft. will not be found to be too much even in the smallest churches. A high altar should always stand raised upon a platform, three steps above the level of the sanctuary floor, and not more than three. The sanctuary itself may be at any level above the chancel that is not inconvenient. These three steps are required for the celebrant, the deacon, and the sub-deacon, or, as they are sometimes called nowadays, the gospeller and epistler. I myself prefer the old names.

The top step should be deeper from front to back than the others—a clear space 3 ft. at the least is necessary in front of the altar, and rather more is better. The other two steps should be at least 18 in. deep (front to back). The height, or rise, is a matter of taste, and will be subject to varying conditions, but I think it will be found inconvenient if the rise of each step is greater than 7 in. The rise of all three should be the same.

It has been supposed that the cross and candlesticks should not be placed upon the altar itself. It appears, however, that in the year 1548 these ornaments often stood upon the altar, and Sir Walter Phillimore wrote to one of the members of the Alcuin Club that "No court has decided that it is illegal to put candlesticks directly on the mensa."

The altar shelf has become very usual nowadays, no doubt by reason of the foregoing supposition; nevertheless, it does not seem to have been uncommon towards the end of the Middle Ages to put the cross and candlesticks on a ledge or shelf, either standing on the altar itself or just behind it. It is mentioned in many inventories, where it is described by different names, which, however, all mean the same thing. In some places, I think, such a shelf adds to the dignity of the altar, and is a convenience. It is better for it to stand behind the altar, rather than upon it, unless the altar is very broad, in which case it should be loose. In the former case it becomes the base of the reredos. The shelf should be from 9 in. to 12 in. wide, to give room for the cross and candlesticks to stand upon it, and it should not be too high. It may be ornamented with carving or painting, or covered with a cloth, coloured and ornamented or not, according to circumstances.

The Reredos.

The object of the reredos is, as I have said, to give dignity and importance to the altar, and this should be the first consideration in designing a reredos. It must be spaced in such a way as not to detract from the altar, nor to overpower it, but rather to add to its prominence and make it unmistakably the principal object at the east end of the church. The existence of a reredos will not necessarily do this—indeed it is possible to draw the attention away from the altar and to make the reredos itself the principal object; and it is very easy to do so, especially as the purpose of the reredos is not always sufficiently realised. I suppose effect is produced by the right relation of things one to another, by subordinating certain things to other things, and by concentrating the means at disposal at the right points. Certainly, differences of spacing and proportions make great differences in effect.

The size of the reredos will vary, of course, greatly. Much will depend upon the amount of money that may be spent upon it, upon the character, materials, and lighting of the church. Besides giving dignity and prominence to the altar, it should harmonise with its surroundings in size, shape, and material. Generally speaking, the simpler it is in form the better it will look; much variety of outline seldom adds dignity, and often detracts from that quality. The choice of material, too, is a thing of vital importance to good effect, and no general rules can be given, since any material may be used. There is, however, one material which seems to me hardly suitable for a reredos, and that is mosaic—unless the reredos is to form a part of a complete scheme of mosaic decoration. If mosaic is used at all, it needs to be used in large quantities and in conjunction with marble, also used in large quantities. Under these circumstances, nothing perhaps could be finer. But a single panel of mosaic, surrounded with a frame of marble or alabaster, is so very different to all the surrounding materials that it seems impossible to make it take its proper place in a building. Again, I think it is a safe rule never to use mosaic unless it can be 15 ft. at least from the eye.

Generally speaking, I think the reredos is better as a separate thing, not forming part of a scheme of wall decoration, but a definite background to the altar, a sort of solid screen at the back of it, with perhaps the altar shelf or shelves forming part of it. These shelves can be used for flowers at high festivals. There are many ways in which such a reredos can be treated. Some old examples remain, for instance, that at Winchester Cathedral, at St. Albans, and at Southwark, to mention three well-known ones. They consist of a great screen of niches filled with figures, but so divided as to give due importance to the altar. This is done by a vertical division a little wider than the altar and by a part immediately over the altar being treated to a different scale to the rest.

The effect of these reredoses must have been magnificent. There seems little hope that we can do anything of this kind at present. Our

sculptors nowadays seem to have turned their attention to realistic portraiture instead of to decorative art, and, until someone arises who is possessed with both the devotional and the decorative spirit, figure sculpture is out of our reach—unless, indeed, M. Rodin would turn his immense powers to express the devotional as well as the intellectual.

A painted reredos might be attempted with better chances of success, if indeed there was any real desire to make use of the best of our painters to ornament our churches. I cannot forget the fact that five, if not more, really great painters—men who possessed the decorative and the devotional spirit equally, I think, with any of their predecessors—have died during the last few years, but, as far as I know, only one of our cathedrals and very few, if any, of our parish churches have a single example of their paintings.

There is one picture by Watts at St. Paul's Cathedral, which, unless I am misinformed, he himself gave to the dean and chapter, but we shall have to search indeed to find any paintings by Rossetti, Maddox Brown, Burne-Jones, Millais, or Watts in our churches. Thousands of pounds have been expended upon stained glass during the lives of these men, much of which is rather a disfigurement than an adornment to the churches where it has been put up.

I am afraid architects have been too ready to employ tradesmen to carry out decorative work rather than artists. I know quite well how much more smoothly everything goes, promises are kept, the work is done *very cheaply*, and, alas, these things please our clients more than a work of art would. The blame must, therefore, rest upon their shoulders rather than on those of the poor architect, who certainly has to bear quite enough blame for other people's failures.

Of course, unless there is a good deal of money to spend on a reredos, it would be impossible to employ a great artist, be he sculptor, painter, or anything else, although I am inclined to think that it need not be so costly as is sometimes supposed.

It is a mistake to attempt any sort of figure decoration, unless an artist can be employed. It is of no importance whether the artist is working independently or for a firm so long as he is an artist and can work and express himself freely. But, so far, the firms who undertake decorative work have not succeeded in finding artists to work for them, with some rare exceptions. I think the reason is that they have not realised that an artist cannot work, except in his own way. If he has to obey orders and do as he is told, one of two things happens—either he gives it up altogether or he degenerates into a mere mechanic. I believe great good might come to everyone concerned if these firms could be induced to employ artists, to consult them about their part of the undertaking, to put them in direct touch with the customers, and allow them to have the credit due to them for their work; to leave them as free as possible to work in their own way and to pay them a fair amount for their work. It would relieve the artist of much business which the business man would do better, and it would save the business man from bothering about things that he has no ability to deal with, and from a good deal of humbug.

In cases where figure work would be too costly, very good effects may be produced by painted patterns, more or less repeating, dividing, and powdered over a field of colour, or even colours. I need hardly say that it wants a very nice sense of colour to produce a good effect, but this surely comes within the work which an architect should undertake personally. For such a purpose I would recommend the use of very few colours, and I think very much may be learnt from good examples of heraldry in the use of colours and metals.

The heraldic rule—never to put colour on colour or metal on metal—is one to bear in mind, although it need not be so binding in decoration as in heraldry; such rules tend to simple effects and treatment, and are useful on that account.

Everyone will find his own method of using colour. One very good way I would suggest is to lay on the colour very bright—almost, if not quite, pure—and then to glaze it down with thin coats of colour superimposed till the brightness or crudeness has been brought down to harmonious tone. Personally, I much prefer tempera to oil paint. I think it has a pleasanter quality, and it darkens less with time.

The Frontal or Dossal.

This brings me to the upper frontal, or dossal, which serves the same purpose as the reredos, namely to give dignity and prominence to the altar, and it is perhaps the best way of doing so in poor churches where they cannot afford a good reredos. It may be of any material, even cotton, and may be hung in any way that will give a good effect. If it is brought right forward over the altar as a canopy a very good effect may be obtained, but it looks much better if the material is suspended over rods of metal, and is all in one piece, rather than if it be strained over a board. I think hangings nearly always look better if hung more or less full. The folds of hanging drapery are one of its distinctive beauties, differentiating it from everything else. It is a little more difficult to hang it full and to bring it forward over the altar, but it is worth the extra trouble. There is, however, one drawback to a canopy—it is apt to get very dirty from the smoke of the candles; indeed, a canopy must always be a considerable height above the altar. The amount of smoke that a good-sized candle makes is surprising, and, as the candles always stand in the same position, the smoke is concentrated in one place. For this reason, too, it is well to arrange for the candles to stand well away from the dossal, or from the reredos.

At each end of the altar should hang the curtains, or riddles. They should be about as wide as the altar, and may be of any height, so long as they are well above the candles, to protect them from being blown about by currents of air. It looks better, I think, for them to be a good deal lower than the dorsal, unless the dossal itself has to be low. They may be hung from rods which fit into sockets in the east wall or attached to the poles which carry the dossal. In some old manuscripts with pictures of the celebration of the Mass the riddles are shown hanging from rods carried by poles at the four corners of the altar, and also as a continuation of the dossal, the whole being carried round the three sides of the altar.

The dossal and riddles may be of any colour or colours, and of any material. The colour must, of course, harmonise with surroundings and the liturgical colours of the frontals and vestments. The dossal and riddles are not changed with the frontal to the colour of the day. When funds permit, it is nice, of course, to have extra gorgeous hangings for the great festivals, but two sets are enough for any church.

It is, I think, absolutely necessary to see a large piece of the material in the church in the position where it is to hang before choosing. The surroundings and light are so very different to a showroom, and in a building the size of a church very strong colour is necessary in order to get any effect of colour.

Most delicate tints have a tendency to look grey. But it is impossible to make any general statement, for colours are so very much affected by what is next to them or near them, by light, and by position that it is almost impossible to tell how they will look without seeing the actual materials together in the position they are to occupy.

The nether or lower frontal is "the cloth in front of the altar, to which the name frontal is now generally given."

The frontal for the high altar "was amongst the things to be found by the parishioners," says Mr. Micklethwaite, in his Alcuin tract, "and old pictures of English altars in use always show them vested." "There is no English authority for the altar itself being carved and painted. Most old ones were quite plain, but a few were panelled in front; as, for instance, that in William of Wykeham's Chapel in the Cathedral Church at Winchester. The covering of the altar with 'a carpet of silk, or other decent stuff' at the time of service was ordered in the canons of 1603, which set forth the least in the way of ornament which might be tolerated."

The frontal need not be mounted on a wooden frame. If it is well made with a proper backing, it can be hung with rings and hooks under the slab of the altar, and can be folded up and put away in a drawer when not in use. The five liturgical colours in the Church of England are white, red, green, purple, and black, and, therefore, five frontals are required. Black is only used for funerals, on Good Friday, and on occasions of national mourning. Poor churches can do without it—on such occasions they would use the purple frontal. A dark indigo blue answers the same purpose as purple, and it is easier to get a good quality of colour in this than in purple. Any colours may be used to decorate the frontals that fancy can desire, so long as the colour of the day is not obscured and everyone can see that it is white, red, green, or purple. The purple frontal should have very little ornament, and should be very subdued; it is used at penitential seasons, and sometimes at funerals.

"*The frontlet* was a strip of stuff fringed on the lower edge and sewn as an 'apparel' on to the front edge of one of the linen cloths, from which it hung, so as to hide the suspension of the lower frontal."

The frontlet need not be changed with the frontal, and may be of any colour that will harmonise with the five frontals. It is better, I think, to have a purple and a black frontlet to use with those two frontals.

It is usual for both frontals and frontlets to be ornamented with embroidery, and, when it is well done, nothing could be more beautiful or suitable. But, just as much as the painting of the reredos, it needs an artist to do it. The firms and the church shops have failed in this respect just as dismally as they have in pictures and windows, and, unless an artist can be employed to do the embroidery, it is much better to do without. Simple bands of colour or woven or printed patterns will be infinitely better than the mechanical and inartistic work of which there is such a painful amount in our churches.

Carpets and Tapestries.

Carpets are often mentioned in old inventories, but it does not follow that the word means what we understand as a carpet—viz., a floor covering. It was used for any cloth or covering. The cloth covering the seat of the sedilia and that covering the lectern as well as floor coverings were called carpets. A carpet to go on the floor and over the steps in front of the altar is a great addition, almost a necessity. It prevents any chance of the priest slipping, and makes all his movements quiet. I like to see it brought right down the chancel—it gives a fine bit of colour and a strong leading line up to the altar.

Tapestries, or wall hangings, are amongst the ornaments of the rubrick, and may be used with good effect in many places, particularly on the east wall and round the sanctuary.

The Altar Cross.

Mr. Micklethwaite says, "A cross was not thought a necessary ornament for an altar, although a common one. The cross, which a parish was bound to provide, was for processions. But often it served for the altar as well, being fitted with a foot to stand in and a staff for carrying. This cross generally had a figure of Our Lord crucified, and sometimes there were brackets at the sides with figures of St. Mary and St. John."

The bede roll of St. Mary's, Sandwich, recorded the benefaction of John Colwyn and his wife, who gave "the best cross of syluer and gylt with a staf of laton ther to, the whyche cost XXV^{li}" and also of Thomas Grene and his wife and John Byschop, who gave "the fote of syluer for that crosse to stand ther on the hygh auter."

There is a curious superstition in the minds of some people, and, amongst others, some of the Chancellors of the English Dioceses, that, although a cross may be used on our altars, it must on no account have a figure on it. In the year 1548, to which the Prayer Book refers us, it seems more than probable that every altar cross had a figure on it. Inasmuch as the cross is the Christian standard, I do not know that it is a matter of great importance, from a didactic point of view, whether it bears a figure or not; but from that of the artist it is very desirable, when funds will permit. I think it is generally accepted that it requires the highest artistic ability to represent the figure properly, and one would suppose that every Christian would desire to see the best art and the best work lavished on the standard of the Kingdom of Heaven. Here, again, when there are no funds to provide a work of art, it is better to have no figure at all.

In my opinion any kind of naturalism in a crucifix should be avoided—a quiet, dignified figure, expressing self-sacrifice and divine love, rather than a human being in torment is very preferable. I myself like the sentiment of early Christian art (that of Our Lord conquering Death) better than the late mediæval and renaissance treatment of the crucifix. The

altar cross should not, I think, be very large. It is, after all, the standard in front of the priest, rather than in front of the people. The great rood answers the second purpose, and it is always behind the priest when he is in the sanctuary.

Altar Lights.

"The direction in the Order of Communion," says Mr. Micklethwaite, "that the old service should continue without varying of any rite or ceremony, sends us back to the ancient usage as to altar lights." "The Order of Communion was to come into use on Easter Day, 1548, and to continue until it was superseded by the English book of 1549." The ancient usage "differed much in different churches, the only fixed rule being that there should be at least one light on the altar at the time of Mass. Rich churches would have more, and it was the custom to vary the number according to the day or service, but the greater number of parish churches probably had ordinarily two lights on the high altar and one on each side altar. On occasions the number used might be very great, but, as a rule, the extra lights were put round about the altar rather than on it. The lights were used at Matins, Mass, and Evensong. The modern custom of having several sets of candles on the altar at the same time for use at different services has no authority in antiquity."

It is better, I think, for candlesticks to be of the same material as the altar cross, and here let me say that it is not necessary to use brass. It is, no doubt, a very good and beautiful material, which is, by the way, generally spoilt by being lacquered, but sometimes a material of another colour would look better.

I must pass over several things in the list of ornaments, of which, no doubt, much might be said, such, for instance, as the chalice and the processional cross. The lectern for the Gospel is rarely if ever used nowadays. Mr. Micklethwaite says, "richly furnished churches often had them," and "in a few churches, chiefly in Derbyshire, stone Gospel-desks are found against the north wall. Such exist at Mickleover, at Crich, and at Chaddesden, all in Derbyshire."

The Piscina and the Sedilia.

We do not always find a *piscina* in modern churches. It is supposed not to be required, but that is a mistake. It is required as much to-day as it was in the Middle Ages, and for similar purposes. It may be made as a beautiful little niche in the south wall of the sanctuary, and it may be combined with the credence, although a projecting shelf or table is more convenient than the small shelf found in many old churches. The drain from it should always run into the ground.

The sedilia.—Mr. Micklethwaite, in the Alcuin Club tract, gives the following interesting note:—

"What we call the sedilia is the last remnant of the bench which, in primitive times, ran all round the apse and was assigned to the priests, whence probably by tradition came the name presbytery, which seems to have been the old English name. In the contract for the rebuilding of Catterick Church (1412) they are called three prismatories, an evident corruption or miswriting of presbyteries."

The sedilia is a triple seat for the celebrant, deacon, and sub-deacon. It should always be on the south side of the sanctuary. In old days it was generally formed in a triple niche, or arcade, recessed in the wall, and the seats were sometimes stepped down to express the degrees of the clergy, but this was not always done. There are many beautiful examples of the sedilia and *piscina* and credence combined in an arcade of four arches or niches. Of late years it has become more usual to make the sedilia a separate and movable piece of furniture, generally of oak, sometimes with a back and canopy, and, on the whole, it suits us better than stone seats, which are apt to be rather cold. In building a new church it would be well to form a recess in the south wall large enough for three seats side by side, and to fix a wooden seat and back divided into three, allowing a width of 2 ft. for each seat at least, and more if there is room. Everything must be soft, smooth, and round, no sharp points or open tracery, that might catch in the vestments. There is no longer any need for a canopy now that the windows are filled with glass and the church is comfortably warmed.

Screens.

The next items in our list are screens, the rood loft and the rood; all of which we may consider together. During the XVth century screens seem to have been erected in most churches to enclose the chancel, and chapels, and elsewhere. Some still remain unrestored (long may they remain so). They are quite exquisite in line, in detail, in sentiment, and in workmanship. Richly ornamented with carving and painting, they are among the most beautiful works of art that Englishmen have produced. They have suffered frightfully, first at the hands of puritan fanatics, and then by the blind neglect and stupidity of XVIIIth century protestantism, and last, but not least, most of those that escaped or survived these two causes of destruction have been stripped of their colour and so "improved" by well meaning, but mistaken "restorers" that but little of their beauty remains. Enough, however, remains to make me, for one, exceedingly wroth with the sacrilege that destroyed them and the stupidity that restored them. But enough remains also to teach us, to inspire us, and to guide us. May I beg all here to move heaven and earth to preserve these priceless relics that still remain from further destruction or restoration. They will remain a very long time yet if proper care is taken of them.

On top of the screen separating chancel from nave, and supported by it, ran the rood loft, reached by a winding stair. The rood loft was used as a minstrels' gallery. It was customary for strolling minstrels to be hired on great festivals. Parts of the service were occasionally sung from the rood loft, but not the Epistle and Gospel.

The rood itself, a large cross with a figure of Our Lord carved or painted upon it, and generally the figures of St. Mary and St. John, stood upon the rood loft, or was suspended over it from the chancel arch. Sometimes other figures of saints and angels were added, and upon the loft many candles were put. There are reasons for and against a chancel screen of a theological kind—which do not concern us now. Such screens are beyond doubt among the ornaments of the rubrick, and they add greatly to the beauty of a church. Screens are generally required by the authorities to separate a chapel from the rest of the church. It is questionable whether a rood loft should be put nowadays, unless it is required for a practical use, which will only be the case in some churches. We no longer engage strolling minstrels who have to be put where they cannot get at valuables, in case they should be tempted to steal. All too few of our churches, however, have anything worth stealing.

Screens may be made of stone, wood, or metal, or a combination of any two or all three of these materials. On the whole, I think wood is the best of the three, but that may be because I have a particular affection for woodwork

There are a few conditions that should regulate the design of a chancel screen. The clergy stalls ought to return against the chancel side of the screen, therefore the lower part must be panelled with solid panelling to a sufficient height to form the back of the stalls, from 3 ft. to 4 ft. from the chancel floor. It is undesirable to block the view of the altar from the congregation, and, unless it is raised on several steps, a high solid base to the screen would do so. If the chancel is long enough to allow of such an arrangement, it looks well, I think, for the chancel floor to be only one step above the nave and for the sanctuary to be raised three more steps beyond the choir seats, leaving enough space at the east side of the choir seats for easy access to them on their own level—say, 2 ft. 6 in. or 3 ft. wide. It is awkward for the members of the choir to have to step down to reach their places. Thus, two steps, with a tread of 12 in. each, would ascend from the level of the chancel to a space at least 4 ft. wide for the communicants; then one step more to the level of the sanctuary floor. A space of at least 5 ft. 6 in. must be allowed before the next step rises. (The altar rail, if there is to be one at all, should be set 18 in. back from the front edge of communicants' step, leaving a width of 4 ft. within.) Then two more steps, each 18 in. wide, and a foot space in front of the altar 3 ft. wide, making a total length eastwards beyond the choir seats of 18 ft. 6 in., or 19 ft. to the front of the altar. The altar itself would be raised seven steps above the nave—say, 3 ft. 6 in. or 3 ft. 9 in. In the former case all steps having a rise of 6 in., in the latter the first four having a rise of 6 in., the last three 7 in. The screen would be fixed on the first step, and the panelled base might be 3 ft. 6 in. high, without hiding the altar. In my opinion, the central opening should be nearly as wide as the altar—7 ft. or 8 ft. in a narrow church, and more in a wide one. It is well, I think, to have as few mullions as may be, and for them to run up a considerable height before the more intricate and ornamental part of the screen begins. Where a loft is not required, I think a strong horizontal line looks well at top, with or without a cresting. In churches where there is no chancel arch, I see no reason why the screen should not run up and be framed into the timbers of the roof, with the rood and any other figures worked into the design of the screen itself. In spite of the long tradition there is for standing figures on top of the screen, more or less isolated, I must say I feel that, if they could be joined on or worked into the design of the screen, it would have a better decorative effect—amongst other reasons, no doubt, because the figures must be less realistic to take their proper place in the whole. In some churches, especially where the chancel is narrow and there is a chancel arch a high screen may not look well. In such cases a low screen of stone or wood is wanted to stop the return stalls. The rood may then stand upon a beam, in which case it is better to have a little ornament of some kind to connect it to the beam. Or it may be suspended in the arch, which is, perhaps, the better way. In either case a cloth of suitable colour hung behind helps the decorative effect. The rood should not be too plain, whether or not figures be added—it is, as I have said, the standard of the Christian army, the symbol of self-sacrifice, rather than the cross of execution.

Gates may be added either of wood or metal, and in churches where valuable or holy things are kept in the chancel they are most desirable, to prevent theft or sacrilege. In such churches a strong but very light metal grille should be fixed between the mullions of the screen. Most, if not all, mediæval screens were painted, and there is every reason why modern screens should also be decorated with colour. The probability of failure is considerable, and it should not be attempted, unless it can be carried out by one who possesses a keen sense of colour. Most modern attempts are such dismal failures it makes one think that the colour sense is now very rare. But there are some exceptions to the failures, and improvement is impossible unless attempts and experiments are made. In the old examples of painted screens that remain very few colours have been used. Nearly all good colourists seem inclined, from time to time, to reduce their palate.

I personally deprecate the attempt to reproduce the work of the past. An artist cannot copy other people's work, either in form or colour. His work may, no doubt, unconsciously reproduce forms and so forth, but, however strong the resemblance may be between his work and that which he most admires, it will not be a copy or reproduction, but his own expression of the beautiful. The demand for mere copying leads to the very poor, uninteresting, and inartistic work which is to be seen in such large quantities all around us. The old work has been studied a great deal, no doubt, but perhaps more with a view to reproduce than to learn, to copy than to acquire experience and knowledge.

No one has ever made a closer or more careful study of old work than did William Morris, and no one ever copied less than he did. He did not confine his study to one branch of old work, but to all, and he made just as careful and close a study of nature, the fountain-head of all beauty. The study of nature has been too much neglected. It seems to me absolutely essential for everyone connected with the decorative arts.

[Owing to the length of Mr. Spooner's paper, we are compelled to divide it here. The remainder, with report of the discussion, will appear next week.]

RURAL BUILDING BY-LAWS.—At a meeting of the Chailey Rural District Council, at Lewes, on the 10th inst., the Surveyor (Mr. H. Weller) reported that the building of Sir William Grantham's cottages was being continued. The Council has not yet decided what action shall be taken in view of this development of the case.

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THE ARCHITECTURAL ASSOCIATION SPRING VISITS:

II.—DEPTFORD MUNICIPAL BUILDINGS.

THE second spring visit, held on Saturday, 11th inst., at the new municipal offices, Deptford, was in every way a very interesting experience to the many members who attended, and the presence of the architects Mr. Lanchester and Mr. Rickards, who kindly gave much information concerning their work, contributed much to the success of the occasion.

Being a municipal undertaking, the customary competition was duly held, and in our number of November 1, 1902, we published the selected design together with two plans. It is gratifying to find that the original conception is but little modified; indeed, it was generally felt that the actual result somewhat exceeded the good impression of which the competition drawings gave promise. The limited area of the site, together with a large accommodation, added to the difficulties of the scheme, but by taking skilful advantage of the levels and introducing a mezzanine floor in the back part of the building, the authors have produced what is found to be a very simple and convenient solution of the problem.

It is perhaps unnecessary to recall the general arrangement of the departments; we give, however, some impressions of the interior and the exterior.

The entrance-hall and staircase are dignified and are thoroughly befitting the importance of the central communication. The barrel-vaulting and domes suggest a Genoese influence, and afford many interesting vistas from the various corners of the hall. The work is given a heavy character throughout, but here, as indeed in all parts of the building, a satisfactory consistency is maintained. The original proposal of lighting the staircase from a glass dome is modified by the introduction of four somewhat small oval lights within the circle, the spandrels of which are filled in with plaster enrichments. Although a bold experiment, the result justifies the means, and affords an instructive study in direct top lighting.

In the council chamber and committee-rooms the same broad treatment is at work in the plaster-panelled walls and enriched ceilings. Two interior views of the building will be found in our issues of July 16 and September 3, 1904.

The chief interest, however, lies in the Portland stone façade, in which the authors confess to an attempt to carry on the XVIIth and XVIIIth century tradition of the town hall buildings of neighbouring riverside towns. Here the principal study appears to have been directed, and has culminated in a thoroughly fresh and vigorous composition, yet fittingly expressive of its municipal purpose. A free use of sculpture is made, in which naval and marine detail is introduced. Cornices, architraves, and other features are again heavily moulded and generously carved. This over-elaboration of parts is an enfeebling element in what is a bold piece of massing. A vast amount of incident and enrichment is given to the central portion of the front, which thus becomes irritatingly busy, and would inevitably be valueless but for the accidental juxtaposition of the two simple wings and of the wide, overhanging verges of the main gable. This suggests a departure from, rather than a continuance of, local architectural tradition, but the whole composition is a great piece of architecture possessed of a welcome individuality, spirited and living; and, what is very satisfactory, forms an important addition to the public buildings of London.

The visitors enjoyed ample time in going into every detail in the work; the visit to another building, included in the afternoon's programme, the South-east London Synagogue, was in no way instructive.

THE DURER SOCIETY.—This Society, which was founded in 1898, has just issued the seventh volume of facsimiles to its members. The address of the Society has been transferred to 32, George-street, Hanover-square, W.

BISHOP HOOPER MEMORIAL.—On Thursday, February 9, was unveiled, after its restoration, the monument which was erected in 1861 on the spot in front of St. Mary's-square, Gloucester, where John Hooper, Bishop of Gloucester, was burned at the stake on February 9, 1554-5. The monument was set up, and has been restored, by public subscription; the restoration has been executed, at a cost of 400*l.*, under the superintendence of Mr. F. W. Waller.

THE ROYAL SANITARY INSTITUTE:

SCHOOL BUILDING AND EQUIPMENT.

ON Thursday, the 9th inst., a discussion took place in connexion with the conference on school hygiene at the London University, South Kensington, on "Building and Equipment." Sir Wm. Anson, Bt., M.P. (Parliamentary Secretary of the Board of Education), presided.

The Chairman, in opening the meeting, said the Board of Education attached great importance to school hygiene, which had lately been prominently before them in consequence of an important deputation from the medical profession. The particular matter they had to deal with that day was not so much the physical health of the children or the mode in which the laws of health could be imparted as the importance of school buildings and apparatus in promoting the health of the scholars. They were fortunate that day in having the opportunity of hearing the views of Sir Aston Webb, not only because of his great reputation as an architect, but because of his special experience in this matter of school building. He knew that the building rules of the Board of Education were likely to come in for criticism, but the Board had endeavoured to frame workable rules, and they hoped to learn something from such discussions as these which would enable them to amend those rules and adapt them for the requirements of the times.

Sir Aston Webb said that in school building, as in all building which was in process of development, it was the architect's duty largely to put into concrete form the requirements which the experience of those engaged in the responsible occupation of bringing up children considered necessary. He felt that for the commencement of a scheme three parties should be brought into conference, and these were the promoters and governors who had to find the money, the master who had to find the brains for the instruction of the children, and the architect who had to design the building. Unfortunately in practice this was rarely done, and the omission was accountable for many mistakes from which a school may never recover. When the three parties he had mentioned had agreed upon the requirements and the amount of money which could be spent, a site could be sought, and, this having been obtained, the architect would prepare his plans with the full responsibility of having been taken into the confidence of his clients, and being fully aware of their aspirations and ideals. The considerations for the site should be a dry soil, easily drained, with a gentle slope towards the south, and an available road for entrance on the north of the site. This enabled the frontage to be on the north side and the rooms and playgrounds to be placed on the sunny side. The site should be, if possible, in a somewhat prominent position, and the building, however plain, should have something about it to express the nobleness of its purpose and impress the children with the dignity of learning. It had been said in one of the papers that morning that architects were apt to sacrifice the interior for the elevation, but he thought all interested in building would agree that, while the planning of modern school buildings was immensely superior to the older buildings, the exteriors did not show a similar superiority, and clearly the tendency now was to devote great care to the planning of these buildings. The two great points to consider were sun in the rooms and free distribution of air around the buildings. This meant the avoidance of enclosed quadrangles, and the time was coming when it would be thought as impossible to build a school round a cloistered quad as a few years ago it was thought impossible to do anything else. The type of school generally adopted now was a series of detached blocks connected with a corridor on the ground floor. There must be ariel circulation round the sanitary blocks, but there was no reason to place these blocks so far away from the main buildings as was sometimes done. The plan and arrangements of all schools should be as simple as possible; the corridors straight and wide and light, and the position of the rooms and staircases such as could be easily understood. The old grammar schools consisted generally of one hall. The schools built for the London School Board first consisted of class-rooms connected by corridors, now a combination of a large hall with class-rooms round, and this was an admirable and economical planning of day schools. Generally the cloak-rooms in day schools were not at present large enough. He advocated glazed walls and asphalte floors for these rooms, and also glazed walls for the sanitary annexes. The question of flooring of the rooms in schools was a difficult problem, and after trying many things he was in favour of wood blocks on concrete. Dormitories should be constructed much on the principle of wards in hospitals, with 800 cubic ft. per boy. All sanitary fillings, etc., should be placed in annexes. Walls of dormitories were best distempered; the wood-work plain, polished, and as few mouldings as possible. With regard to the materials for school buildings, dryness was the great point, and he thought brick walls were more waterproof than stone. A good drainage system to start with was not sufficient, but there should be an annual examination to see that all was working well. Heating and ventilation could be obtained in several ways, but it must be remembered that all parts of a school did not necessarily require the same treatment. Whatever system was adopted it was desirable, in addition, to have fireplaces in the rooms, although they might be little used. Hygiene was a question on which finality had been by no means reached. As architects they were willing and anxious to take their share of the work of bringing the buildings up to the standard which might be required, but hygiene as applied to schools was not merely a matter of cubic space, ventilation, and drains, but pleasant and æsthetic arrangements were also needed, for they had much to do with the health and happiness of the children, and must not be overlooked.

Weak Points in School Design.

Mr. J. Osborne Smith said he proposed to restrict himself to the indication of a few weak points in school design, There could be no question that the health of the teachers and children would be largely increased by the work now being carried on under the Acts of 1902 and 1903 to improve the "non-provided" school buildings. The large number of these buildings which are found to be structurally deficient would seem to indicate that the heads of the Education Department have been very lax in the past, or that the system of inspection has been radically wrong. Probably the backward condition of these "non-provided" school buildings was due in great measure to the fact that reports upon the structural and sanitary condition of the buildings have been made to the Education Department by inspectors appointed to examine the children, and not by persons skilled in designing and constructing school buildings. There was still much good secondary teaching done in adapted buildings, in large private houses, altered and extended to be as suitable as may be for school purposes, but the work in such buildings was carried on under serious disadvantages, as compared with similar work in specially designed buildings.

The floor space must depend not only upon the kind of desks intended to be used, but also upon the rapidity with which the air inside the building can be changed, and the requirement that every part of the room shall be well lighted. The experience of teachers, medical officers of health, and architects in America, on the Continent, and in this country, indicates that 15 sq. ft. of floor space and 200 cubic ft. of air space per pupil should be the minimum provision for classrooms in which there are adequate means for warming and ventilating. That was the minimum required for health. The Board of Education had recently fixed the floor space for secondary schools at 18 ft., but 10 ft. continues to be the official minimum for elementary schools, and 13 and 16 ft. (according to the kind of desk used) for the higher elementary schools. Medical officers of health were continually urging that classes should be reduced in size, and the air space per child should be increased. Yet it was ordained by the Education Department that the children in the elementary schools might have only a trifle more than half the floor space and air space given to children of similar age in the secondary schools. Surely we might claim that as 15 ft. has been shown by universal experience to be the healthy minimum floor space, 10 ft. should no longer be officially recognised as sufficient. Classrooms for twenty five or thirty need not be more than 12 ft. high, or even less, provided the means for ventilation are suitable and sufficient. Economy in the height of rooms was more commendable than a

reduction of the floor space below the acknowledged minimum healthy standard.

It was not always possible to secure the most suitable aspect for a school building in a town owing to the limited extent of the site, the presence of high buildings near the boundaries, and other causes. Much, however, might be done by avoiding the temptation to set the building's best elevation parallel to the street regardless of the aspect, as was too often done. Sunless rooms could in most cases be avoided by judicious planning. Teaching could not be efficiently carried on in proximity to the incessant noise and dust arising from traffic upon a main road. The neighbourhood of factories, mills, electric light and power stations, railways, tram-lines, and similar noisy and dusty situations, should be avoided when selecting a site for school buildings.

The playgrounds in this country compare favourably with those in the large cities of America. A larger proportion of the space than is usual should be covered in and ventilated at the top, especially for the juniors, so that most of the games could be carried on regardless of wet weather. The surfaces of all playgrounds should be smooth without being slippery, and formed of materials, such as asphalte or good granolithic cement, which do not work up into dust. The surfaces should also be compact, so that nothing adheres to the boots, durable, not liable to be kicked up or worn into holes, and well-drained. Gravel, cinder-ashes, shingle, and loose materials are unsuitable.

In elementary schools sanitary conveniences were usually placed some distance from the school building proper in a corner of the playground, and children must pass through the open air to reach them. This arrangement was seldom found, except in this country. It had long been generally abandoned for girls' secondary schools, although in some modern schools of this type he was sorry to say it was still found. So long as these conveniences were under reasonable supervision, and were disconnected from the school proper by a well-ventilated lobby or covered way, no danger to health could arise from connecting them to the school building, and the hardship of sending children, especially juniors, out from warm classrooms in wet and cold weather could be avoided.

In the recent rules for secondary schools the distance apart for the cloak-hooks was fixed at 12 in., *i.e.*, double that required in elementary schools. If 12 in. was a reasonable minimum distance for cloak-hooks for the garments of the well-cared-for, surely a distance of only 6 in. was insufficient for the poorer and probably much damper clothes of umbrella-less children. Moreover, the official 4 ft. gangways were too narrow, especially for the use of girls; the floor-space should be further increased to give better means of access to the clothes and space for dressing. In secondary schools still more floor space was required for seats and boot-boxes; 6 ft. was found to be a reasonable width for these gangways, which should never be less than 5 ft. wide from centre to centre of stands. Each gangway should have an external window at the end, and all parts should be well lighted when the children were present. To ensure this it was desirable that the rooms should not be less than 9 ft. high. A suitable position for the cloak-room was near the entrance; good discipline and a liberal allowance of scrapers and rubber mats at the entrances and near the cloakrooms would prevent much boot-dust from the outside reaching the interior of the school. Polished floors throughout the building would then be possible, except, perhaps, in the cloakrooms and entrances, where jointless impervious floor surfaces, such as asphalte or granolithic cement, would be more appropriate. Wax polishing wood floors cost no more to maintain in good condition than washing the floors with water, which softens the wood and makes it less durable.

Whatever method of ventilation was used, all schools should be designed to allow large volumes of air to pass through the buildings from side to side when the windows were open, so that all parts could be readily swept by currents of fresh external air whenever desired. Windows were perhaps the most important and permanent means of securing ventilation in all buildings for educational purposes. When the windows were suitably designed and intelligently used in connexion with two or more outlet flues from the ceiling and floor level to above the roof, and there were also large open ventilating fire-grates, stoves, and radiators, by which warmed fresh air was admitted to the rooms, long experience had proved that classrooms could be reasonably, adequately, and economically warmed and ventilated. In large manufacturing cities and towns afflicted by dust or fog, windows admit, with the external air, so many of the impurities which pollute it, that there was some excuse for keeping them closed on the plea of cleanliness and good reason for making arrangements to wash the air and force it into and through the schoolrooms by artificial means. Fans and other appliances had proved very useful for crowded places, factories, etc., but the scientific adaptation of them to school buildings was in the experimental stage at present. Improvements might reasonably be expected, in the near future, in the application of mechanical means of ventilation to large schools, which would lessen the objections now existing to many of the imperfect attempts to introduce air by machinery and close the open windows of schools. The aim of the sanitarian should rather be directed to restrict the causes which deteriorate the air of cities and large towns than to encourage the boxing-up of children in a series of sealed cells and the pumping of air specially prepared for indoor consumption.

Ventilation of Schools.

Mr. A. F. Somerville read a paper entitled "Some Suggestions for the Better Ventilation of Schools," in the course of which he said:

With regard to schools which have been built for ten years and longer, it will, I think, be admitted that, in the case of the majority of these schools, they have been built without any definite ideas as to ventilation or temperature, and, in many instances, with very crude ideas on the equally important question of efficient sanitation. With regard to more modern schools, though there has undoubtedly been an improvement in both ventilation and sanitation, still few schools show that these two matters were a first consideration in their construction. An attractive exterior rather than a thoroughly healthy interior has been the chief aim of the school committee and their architect—though, in justice to some architects, I admit that the architect has had at times to give way to meet the requirements of the school committee. . . .

In Chapter III. of the code there are to be found general rules with reference to the questions of accommodation and equipment, but it seems to be left to H.M. Inspector and the "responsible officer of the local education authority" to decide whether or not the requirements of the Board of Education, with reference to these two matters, which include ventilation, heating, and sanitation, have been complied with. Now, sir, I will ask you whether, if you were building a house for your own occupation, you would be prepared to submit the question of its ventilation, heating, and sanitation to H.M. Inspector having control over the district, and the "responsible officer of the local education authority"? If you would not do this with regard to your own house, what right has the Board of Education to entrust these important matters affecting the health of thousands of children to gentlemen, who in their own departments are no doubt experts, and fulfil their duties with ability, but who have not had that training which renders them capable of being considered experts in matters of hygiene? . . .

To descend, however, from generalities to details: I find that the recognised accommodation of a school may from time to time be revised by the Board of Education, but there shall in no case be less than 80 cubic ft. of internal space, and 8 sq. ft. of internal area for each unit of the number of children in average attendance for which the school is recognised. I have not been able to find that any rules have been laid down regulating the internal space and internal area in schools, other than elementary. In Miss Alice Ravenhill's most interesting report on schools in the United States of America (*Journal*, Sanitary Institute, Vol. XXIII., Part I.) it is pointed out that in the New York City schools the internal area or floor space for each child is 12 sq. ft. (as compared with the minimum of 8 sq. ft. allowed here), and in the normal schools the internal space varies from 240 to 270 ft. cubic, with an internal area of 20 sq. ft. per pupil. But there is a further important provision in these schools, that each pupil shall receive about 2,000 cubic ft. of fresh air per hour. Whether or not the minimum laid down by the Board of Education, viz., 8 sq. ft. of internal area and 80 cubic ft. of internal space is sufficient, is not so material as the question of the minimum of fresh air which each child shall receive per hour. . . Some people think that doors, windows, and an open fireplace are all that is necessary; those are the people who can sit in a draught and enjoy it. I don't like those people, and don't want to live with them. By all means let every door and window be open when the school is empty; and in the middle of summer, when the temperature of the outside air varies but little from that of the schoolroom, windows may be freely opened, but proper ventilation should be free from, and prevent draughts. . . . Sufficient fresh air should be introduced, and, when feasible, filtered, and at a proper temperature, and at the same time the foul air extracted. Attention should, moreover, be particularly directed to the large window space, a constant source of draughts in schools as well as in churches. The warm air of the classroom coming into contact with the cold window becomes chilled and falls; and, when the temperature of the outside air is very low, the chilled air inside falling rapidly creates a serious draught. In America and in other countries, where the winter is very severe, it is found necessary to have double windows. To provide our schools with double windows is neither necessary, nor for several reasons would it be desirable. A probable remedy, in schools which are heated by hot-water pipes, might be found by placing one of the radiators underneath the windows, or else by having a slit in the window sill connecting with the hot-water pipes, so that a current of hot air passes continually up the slit and against the window. To prevent dust passing up also the air might be filtered through a slide, covered with muslin, at the mouth of the slit. . . . Now as to the remedy. In the first place, it must I think be admitted that ventilation is a far more difficult subject to deal with than questions of drainage, which latter, thanks to modern research and well-tried systems, can be efficiently and effectively settled. . . . In well-managed dairies the temperature is noted and registered daily, and in the same way it would be easy to keep a daily record of the temperature of the school and classrooms at the commencement of the school, before the interval, and before the close of the school. This should be some guide as to whether attention is being paid to heating and ventilation. Thermometers should be kept in every school, and their proper position fixed. In those schools where complaint is made of serious defects in ventilation, it should be possible to obtain a sample of the air, so as to ascertain the proportion of CO_2 present. The question of ventilation and sanitation should be left to properly qualified persons, and not to H.M. Inspectors and the "responsible officer of the local education authority."

With regard to existing schools, I would deprecate any attempts to insist upon an immediate large expenditure to remedy defects, for the unfortunate ratepayer must be considered; but in many cases much improvement might be effected at a slight cost. Tobin tubes, with a sufficient length of shaft to prevent a draught, a board under the lower sash of a window, and similar simple methods will materially assist the entrance of fresh air, and Boyle extractors on the roof aid the expulsion of foul air.

In the case of new schools to be built in the future, proper ventilation should be insisted upon, and I would further suggest that it is not sufficient merely to examine the plans, but there should also be an inspection of the site and surroundings before the proposed system of ventilation be approved of or condemned. . . .

Mr. Whittaker (Chairman of the Council of the Royal Sanitary Institute) said that when a local authority wanted an independent report on an engineering matter it appealed to the President of the Institution of Civil Engineers, who sent down an engineer absolutely unbiassed. Some time ago a populous borough wanted an independent report on a school, and they appealed to the Sanitary Institute, who sent down a gentleman, and he bad reported. That was a way in which the Institute could help local authorities. He felt they ought not to grudge the expenditure of a few pounds in making their public buildings—whether schools, police-stations, or fire-stations—handsome.

Mr. W. Langbridge, as an elementary teacher

in charge of a slum school in the East-end of London, welcomed the efforts made by the Institute to improve the hygiene of schools. What was greatly wanted in such a type of school was a large hall for exercise in wet weather.

Dr. Geo. Reid (Medical Officer of Health for the County of Staffordshire) said the great difficulty in dealing with school construction was that of ventilation. He felt that mechanical ventilation was not only expensive, but was bad from the point of view of education; but it was essential that children should learn the value of fresh air in their own homes. He believed the time was coming when schools would be constructed practically like hospitals, with windows on both sides, not opening into a corridor, but into the open air on a verandah by which the children could get from one room to another.

Miss A. Ravenhill referred to the excellent system of school baths in operation at Amsterdam. There one school bath centre served a considerable number of schools. The plans would, she believed, be published in next week's *Builder*.

Dr. T. Lyon thought it was absolutely impossible to have the open window system in schools. While a certain amount of air was necessary for breathing, ten times as much was necessary to purify the room.

Dr. Hayward (Medical Officer of the Wimbledon Education Authority) dwelt on the need of securing better seating arrangements in schools.

On the motion of the Chairman a vote of thanks was passed to the readers of papers.

The conference was resumed and concluded on Friday, the subject of the day being "Training in Hygiene."

THE INCORPORATED CLERKS OF WORKS' ASSOCIATION.

THE twenty-second annual dinner of the Incorporated Clerks of Works' Association of Great Britain was held at the Criterion Restaurant, W., on Saturday last week. Mr. J. S. Gibson presided over about 330 members and friends, including Messrs. J. Carmichael (President of the London Master Builders' Association), J. Hutton Freeman, S. Young, J. C. Hill, A. Ritchie, W. Woodward, J. Aitchison, J. Brady, J. Davies, A. Fincham, D. W. McInnes, W. Pitts (President), and J. Pain (vice-president, hon. secretary, and treasurer).

The loyal toasts having been honoured, Mr. J. Davies proposed "The Architects and Surveyors," and, in doing so, said that the industry of building—architects, surveyors, and building trades—was a very ancient one. He held in his hand an ancient code of building laws found last year and known as the code of Hammurabi, King of Babylonia, about 2250 B.C. There was evidence from that code that there existed a building trades industry, and it had to be dealt with in a statutory way. Jerry building was not an unknown practice in those days, for it was stated in the code that, if a builder built a house—nothing was said as to architects and surveyors—and the building fell down and killed a man, the builder was put to death. They would all agree that that was very concise and straightforward, but now architects in the proper sense of the word had come on the scene. The earliest reference to the surveyor that he could find occurred on a tablet found at Pompeii. The architects of to-day had a grand opportunity of embodying the sentiments and aspirations of the nation in stone, and of showing future generations that the people of the XXth century had an object in view, and that they had achieved it in stone.

Mr. W. Woodward, in response, said there was another law in the code referred to by Mr. Davies which was very interesting to architects. It was law 233, which read:—"If a builder builds a house for a man and does not make its construction meet the requirements and a wall falls in, that builder shall strengthen that wall at his own expense." That suggested to him a very important matter. He reminded them, as men who had to carry out building requirements in London, of what it meant to "meet the requirements" in London. An architect about to erect a structure had first to meet the requirements of Spring-gardens, and if there was an architect present or in London who could meet the requirements of that body in the course of, say, six months after having deposited a few hundred drawings and attended at Spring-gardens a few dozen times, then he was a very fortunate individual. After the requirements of the L.C.C. were met, there were the requirements of the Borough Councils—not only their practical requirements, but their fads, which were numerous and exasperating too. Then there were the requirements of those men whom they all honoured in their works—*i.e.*, the district surveyors—but there were district surveyors and district surveyors—district surveyors who read a certain clause of the 1894 Act in one way and another set who read it in another—men who helped the architect and the clerk of works and men who hindered their progress all they could. Then there were the requirements of the adjoining owners—men who thought that their rights of light were going to be injured, and who, until the case of their friend, Mr. Howard Colls, was taken to the House of Lords and decided, were able to stop a magnificent building going up because they contended that some insignificant light was being injured. As Mr. Davies said, there were unquestionably great opportunities for architects nowadays. An architect erected a building which was an honour to the profession or the reverse, and which was more or less a permanent structure. If unpleasing, it could not very well be removed, whereas the work of the sculptor or painter could be; but, all things considered, he thought that there was considerable hope for architecture. He believed that that architect was much better able to carry on his work who had a knowledge of quantity surveying, or who, in his early days or later, had practised as a quantity surveyor, than the man who had not. As to the clerks of works or builder's foremen, he made it a point at the first introduction to say to them, "You are going to be devoted to this one building; I have other buildings to attend to; whatever suggestion you can make to me—if you can see anything wrong in the drawings or anything you can add to the specification, or any improvement to the design, even, I shall welcome them, and, if they meet my approval, I will adopt them." He had had suggestions from clerks of works even to the improvement of his designs, for which he was personally grateful.

Mr. S. Young having briefly responded for the surveyors,

Mr. J. Aitchison proposed "The Worshipful Company of Carpenters." In the course of his remarks he referred to the great benefits the Company had, by their classes and lectures, conferred on the young men belonging to the trade. He often thought that young architects might with advantage join these classes and so get a practical knowledge of the trades connected with architecture. The Association was indebted to the Company also for the use of a meeting room, and they in return assisted them in their practical examinations.

Mr. J. Hutton Freeman, Clerk of the Company, responded, and said it was not quite right to say that young architects did not attend the classes of the Company. A great many young architects attended the classes at King's College and University College, and they came occasionally to the lectures. The classes at Titchfield-street were intended more for the men actually engaged in the various trades. It was the intention of the Company to bring forward as much as possible the question of forestry, and a lecture would shortly be given in their hall on the subject. Later in the year the Company would hold an exhibition of woodcarving and works in wood, and prizes were to be offered both by the Joiners' Company and the Carpenters' Company for good work done in classes.

The Chairman then proposed the toast of "The Incorporated Clerks of Works' Association of Great Britain." He was glad to see present so many gentlemen interested in building, for it was the spirit of co-operation amongst all the different branches of the building trade that would help to make the buildings of the XXth century memorable in times to come. As to the antiquity of the calling of architects and builders and the existence of jerry-building in the remote days referred to, it would probably have been a great advantage had clerks of works, with their judgment and experience and knowledge of the best materials to use, been employed at that early time, for we should not then have had great historical buildings which to all appearances were monuments of solidity and strength proving to be, after the veneer was taken off, largely composed of materials that were quite unworthy of the building. It was a great advantage to the architect to have clerks of works to devote attention to the development of his designs and to see that the right materials were used and used in the proper manner, and the architect relied on the trustworthiness and integrity of his clerk of works to carry out his ideas in the best manner possible. The Association was founded and was carried on for the purpose of intercourse between its members, and that in itself was a good object, for there were many questions which arise in the requirements of the day which demanded a great deal of study and thought. There were many difficulties which occur in large modern buildings, and this intercourse was of great value to clerks of works and others; it enlarged their experience, and when difficult problems came up they could take the advice of their friends and meet together and talk matters over, and probably find a way out of difficulties. The Association was also founded for the purpose of obtaining employment for its members by other means than by advertisements, and he hoped they would always be successful in that object. Building was not one of the exact sciences, like mechanical engineering and chemistry; it was subject to a great many developments and occurrences which were not evident to the mere drawer of plans and arose out of peculiarities of site and as the building proceeded. He was glad that it was so, for were architecture reduced to an exact science it would be very much more uninteresting than it is. He liked to see drawings well and clearly made, and he also took advantage of hints as to improving designs from, and the knowledge of, clerks of works; but he did not like the clerk of the works who was continually pushing himself forward—who wanted to write the specification, make the details, and measure up the variations, and generally carry the whole job on his own shoulders and the architect as well. He was one of those architects who preferred to do a little, at any rate, of his own work. He had always insisted on writing his own specification, and, as a young man, he had a good drilling in specification writing. He did not think it pleasing work at the time, but he had found it of great advantage later in life. The Association should cultivate the spirit of comradeship among its members. Nothing would tend more to raise the status of clerks of works than the knowledge that they were all good friends of each other, that they were helping each other on to a greater knowledge and experience in their work. The Association was incorporated in 1882, and its membership had continually increased, but he wished that the membership would increase faster and as it ought in a great country like this, and especially in a great city like London. He was glad to know that it was the intention of the Association to institute a benevolent fund, for nothing would help to widen and broaden their influence more than the fact that it would take care of those who had been less fortunate and unable to make provision for old age. He hoped that before another year had passed the fund would be started on a business-like basis. There was also a library in connexion with the Association for the use of the members, and that was a good thing; but, while it was necessary that they should be well up in the standard works on which their knowledge was based, it was still more necessary that they should cultivate that practical knowledge of work beside which book-learning was really of little account. In his own office he always insisted on his draughtsmen and pupils spending a large part of their time on works, for it was easier to get knowledge that would last in that way than by reading about it. He did not like the idea of young architects being trained in the idea that they were mere drawing-machines. He preferred that they should take a building under their care, seeing it through from beginning to end, and that was an advantage to the architect as well as the pupil. He did not like a clerk of works, for instance, to turn up his specification when asked a certain detail; he expected him to know the specification thoroughly, for it was his business to do so, and generally he was not disappointed in those clerks of works with whom he came in contact.

Mr. W. Pitts, President, in reply, said that, as to the benevolent fund, he had in his pocket a scheme which would be laid before the Association on Monday and which he hoped would be carried.

The toast of "The Press" having been honoured (proposed by Mr. J. Brady, Editor of the Clerk of Works' *Journal*),

Mr. A. Fincham proposed "The Visitors," coupled with the names of Mr. J. Carmichael

and Mr. J. C. Hill, of the London Brick Company, both of whom suitably responded.

The concluding toast was "The Chairman," proposed by Mr. D. W. McInnes.

THE SURVEYORS' INSTITUTION.

THE usual fortnightly meeting of the Surveyors' Institution was held on Monday at No. 12, Great George-street, Mr. H. T. Stewart (President) in the chair.

The Secretary announced that the name of Mr. W. H. Theobald had been placed on the balloting paper to fill the vacancy on the Council caused by the death of Mr. Thos. Blashill.

Urban and Rural Building By-laws.

Mr. W. Woodward, in resuming the debate on the papers read by Messrs. A. R. Stenning and R. Menzies on "Urban and Rural Building By-laws," said that if Sir Wm. Grantham had not done any other good in connexion with this matter he certainly had very forcibly drawn public attention to the growing necessity there was of placing a strong curb upon the controlling authorities of the country. During the last fifteen or sixteen years they would doubtless all have observed the tendency on the part of the constituted authorities to interfere with regard to building matters quite unnecessarily so far as public health and well-being was concerned. Since the proceedings by Sir Wm. Grantham there had been newspaper criticisms and accusations that the real object of the opposition to the by-laws was that landlords and property owners should be able to secure jerry-built dwellings for the working classes. He believed that was a gross libel which they need not take the time to contradict. In his opinion there was a desire on the part of every architect in the country to act in the interests of his client, and there was every desire on the part of property owners who wished for the welfare of the working-classes to build healthy cottages. What, however, they did not want was an interference which unnecessarily increased the cost of the buildings without giving any corresponding benefit to those who would occupy the dwellings. It had been said very properly that every power given to a constituted authority meant the taking away of a corresponding liberty from the subject. He felt that Mr. Stenning had arrived at some practical conclusions which would be for the benefit not only of architects and surveyors, but also of the constituted authorities. Mr. Stenning said all he required was (1) minimum size of rooms; (2) stability of structure; (3) sufficiency of air space about buildings; (4) good drainage and sanitary provisions; (5) internal ventilation; and (6) width of roads and lines of frontage. These were the chief lines on which dwellings in rural districts could be made habitable and healthy homes. Even if they took the speculating builder they knew it was to the interest of that gentleman to put up buildings that would let readily. He did not see why the speculating builder should be ridiculed, for he only desired to get some margin of profit over his outlay, and he would find, as they found in London, that if he did not put up respectable buildings his dwellings remained unlet. Mr. Menzies said that all he wanted was stability and provisions as to fire and the general purposes of health, and he put forward one or two practical suggestions which landlords would do well to follow, and which they in London had to follow under the provisions of the London Building Act of 1894. He thought the suggestion of a layer of concrete over the surface was a necessary requirement, as it kept off damp. Even where there was a gravel soil that was a good provision. Mr. Menzies also proposed horizontal damp courses, which he (the speaker) thought should be insisted on, and also vertical damp courses, which they were compelled to provide in London when any part of the building was beneath the ground line. Mr. Menzies also suggested coping of parapet walls, and these were practical suggestions which he felt were all that were necessary so far as the controlling authorities were concerned. Mr. Arthur Vernon, who had great experience, had given some practical suggestions and also thought the mischief had arisen by attempting to adapt the London building by-laws to the country. There was no doubt that a good many of the by-laws of the Local Government Board were taken from the London by-laws. Mr. H. Smith was quite right in saying that the building by-laws caused ugly erections. In place of the picturesque whole or half timbered houses they had in many cases barrack-like buildings. As regarded that, they had only to remember the terrible effect of the requirement of the angle of 63½ deg. required by the Building Act of 1894 in London. That was responsible for much of the prevalent ugliness, and he hoped in the Amending Bill that unfortunate clause would be struck out. Mr. MacMorran, K.C., gave them some very practical suggestions, and said the time had come when there should be a building code which would be understood by the people. Mr. Elwes had pointed out the extra cost of building due to the ridiculous by-laws. They all knew that the idea of fire was a totally exaggerated one. The cry for all these fire-resisting and fireproof dwellings, which added to the cost, was due to some poor persons having been burnt, but if they were always to proceed on that principle they would never go into the streets at all for fear of being run over. As to air space about buildings, it was suggested at a recent meeting of the Royal Institute of British Architects that so long as air space was round a building it did not matter whether it was at the rear or not. Mr. Williams had spoken on the other side, and said he wanted good houses for the workmen and also cheap houses. He (Mr. Woodward) contended that the enormous increase in the cost of building was due to the organised idleness and terrorism of the workmen themselves. In his experience building had gone up 25 to 30 per cent. in price owing to this cause. Mr. Williams said every room should contain 1,200 cubic ft. of air space. Well, he had measured the rooms in his own house at Hampstead, and found one, which was 15 ft. by 11 ft. and 7 ft. high, gave 1,155 cubic ft., and he felt that was a fairly good-sized room. He would like to refer to the Building By-law Reform Association. What that Association required was a short Act of Parliament containing general clauses dealing with width of way, line of frontage, open space about buildings, and as to water supply and sanitation; and he did not see the necessity for any by-laws at all or for the existence of the Local Government Board. He trusted that the papers and discussions would lead the public to awake from the apathy which had resulted in what they all deplored, and that as the result of the proceedings by Sir Wm. Grantham they would get healthy buildings without restrictions.

Mr. E. W. Hudson said they all agreed that there was a strong necessity for minimising and moderating the by-laws as they at present existed, and he felt sure that that Institution, in conjunction with the Royal Institute of British Architects, could in a short time put forward such a code as would be acceptable to the Local Government Board, the architects, and the public. Reference had been made to the ill-results of the small voter having the choice of officials, but he did not think that was general. He, personally, had not found that a practical man raised by self-help to an official position was any more difficult to deal with than some of those gentlemen who wrote initials after their names. If the country gentry would only give up some time to join in the work of some of these local bodies they would be able to control as far as necessary those other members who might not have had the very great advantages of education. He felt himself that the views adopted by these local authorities were the official views, and that very rarely had members axes of their own to grind. Certainly he felt that a man's origin should not be dragged into the question of whether he performed his duties. As had been well said, "He who debases my rank exalts my character." He thought Sir W. Grantham's counsel took an objectionable method of dealing with the professional witnesses before him in the case which was fought. He did not hesitate to say that some of the best surveyors in the old vestries were self-made men. As to the plans which gave rise to this agitation, he was very doubtful whether any member of that Institution would have expected them to have been accepted by any local board in the country, or would have accepted them himself had he been an official in office. It would really seem to the ordinary individual that there had been a great deal of pique introduced into the matter, and he could not, for one, understand why a simple plan should not have been drawn up which would have satisfied any reasonable official. Rightly or wrongly the by-laws were the law of the land, and until they were superseded it was the duty of those in authority to see that they were carried out. It was not always the rustic officials who gave difficulty to architects. He remembered many years ago, for some extraordinary reason, Sir E. B. Dennison was appointed Diocesan Surveyor for one of the Northern dioceses, and architects had to submit plans to him. Whether the architect was an eminent man or a fledgling these plans always came back with the remark, "This is wrong," or "That must be altered, see my book on building, page so and so." If any gentleman there felt exalted in his profession let him get a copy of that book and read it, and if he was not then a humbler man he would have read it in vain. Mr. Stenning had suggested uniform by-laws, but he did not think that right. What would make a dry and satisfactory building on Tunbridge Wells Common would not do in the Lake District or in Ireland, where the rainfall was much greater. He quite agreed with Mr. Menzies that there should be a concrete platform. As to materials, match-board lining was objectionable for sanitary reasons, but with overhanging eaves plaster might be used. Plans ought not to be demanded for retention, but a block plan ought to be supplied for inspection. He thought there would be no objection to tribunals of appeal where there was any disagreement as to the meaning of any particular by-law. Mr. Vernon referred to party walls coming above the roof, and it was absolutely impossible to keep out the wet with brick parapet walls. There was only one way to do it, which was to run off the walls and cement down to the slates. Barge boards and wooden bays should be allowed. He noticed that Mr. Williams was proposing to carry a deputation to the Local Government Board in favour of by-laws. He felt that no one would advocate the abolition of all by-laws, and therefore he could not see the necessity for such a deputation.

Mr. J. L. Crouch said that Mr. Stenning thought it desirable to have one uniform set of by-laws applicable alike to urban and rural districts, but that the by-laws should be modified or altogether relaxed in the case of rural cottages with a view of lessening the cost of building labourers' cottages. Personally he should think that the task of drafting such by-laws was much less easy than seemed to be thought. Assuming that the draft was complete, then the more formidable task of obtaining Parliamentary sanction would have to be faced. It seemed to him perfectly clear that the Local Government Board could not enforce a code at present. Up to now no one had spoken favourably of the present state of things, and a change seemed to be unanimously desirable. Mr. Stenning was satisfied with suggesting that a code was necessary, but very wisely he did not produce any code or put before them any details. If he had done so, he (the speaker) felt from the remarks which had fallen that they would be a very long time discussing such a code. With regard to the relaxation of by-laws, Mr. Stenning had mentioned certain sub-sections of the London Building Act which gave exemption from clauses of that Act, and he suggested that certain property in the country should be exempted in the same way. While he saw no objection to that yet he hardly agreed with the way in which Mr. Stenning had put it. Mr. Stenning would allow property to be built of any material provided that it was built 30 ft. from adjoining property, and 15 ft. from an adjoining owner. He (the speaker) thought that would work unfairly to the adjoining owner. Suppose that owner wished to put up a permanent building right on the boundary of his land, he would only be 15 ft. from the temporary building, and therefore he would not be able to comply with the by-law. The consequence was that the man who wished to put up the permanent building would have to build 15 ft. from the boundary, and he hardly imagined that such a proposal as that would ever pass. He could not imagine owners desiring to put up permanent buildings being penalised in favour of owners who wished to put up a temporary building. The special idea of the papers was, he took it, to cheapen the cost of erecting buildings in the country. Mr. Stenning would allow a building which had 30 ft. space on either side to be built of any material, but he would go much further than that. If they were near a town the cost of the necessary land to give this space would take away all the advantage of any saving in the

material. In the country it did not much matter whether the thing was much cheaper or not, for there was little chance of anyone except a landowner building cottages, and certainly as a speculation they would not pay. A cottage let at 3s. a week would be worth 80*l.* or 90*l.*, and they might relax the by-laws as much as they liked, and then they could not build at the price. Personally he would allow the landowner to put up as many cottages as he liked in a row. Why should they not put up a row of timber cottages so long as the cross walls were of brick? There would be a saving in the case of a row of cottages, but where only one was being built the saving would be very little if any. Mr. Stenning suggested a tribunal, but he (the speaker) did not think they stood the slightest chance of getting a tribunal to judge of the suitability of buildings in a particular district. He had not had any trouble with the District Councils, but he had had trouble with the surveyors who very frequently were quite incompetent. He met one not long ago who was a retired policeman, and knew nothing about building. If they had a tribunal he would suggest the abolition of the surveyor to the Council. At the present time the Council surveyor was appointed at a small salary, and considered himself the advocate of his employers, and if there was a tribunal he could more than ever consider himself an advocate. District surveyors ought to be wholly independent of the local authority, and should hold an impartial position between the Council and the person building. They had Sir Wm. Grantham with them that night, and no doubt he would be able to explain why he did the architects and surveyors out of work by preparing plans himself.

Mr. Martin Vigers thought by-laws, both urban and rural, should give the owner the right to dispense with concrete on the surface, provided he constructed the lowest floor of concrete. There should, of course, be sufficient space for ventilation, and that should be obtained either by gratings or air bricks. The floor would be covered either by boards or blocks. He ventured to suggest that houses constructed in this way would be dryer, warmer, and more healthy than those having a layer of concrete practically on the soil, with a boarded floor above the concrete. As regarded the superstructure, he felt it would be going too far to say that there should be no by-laws. He would permit wooden cottages, provided that the walls were plastered. As to width of roads in rural districts, he would suggest that 30 ft., including pathways, was sufficient, and not too much.

Mr. R. M. Chart, who for over twenty years has been surveyor to the Croydon Rural District, said that that district was the largest so-called rural parish in England, but a part of it was only rural in name. He agreed that the model by-laws were not suitable for rural districts, but it would be a mistake if in the urban district there were only rural by-laws applied. While they desired that facilities should be given for the more economical construction of cottages in rural districts, they must not forget the evils which led up to the passing of by-laws. They knew that in rural districts adjoining towns houses were being erected by unscrupulous persons which were calculated seriously to affect the health of the occupants. It must be admitted that the by-laws had done much to remedy these evils. He disagreed with the author of the paper that the model by-laws did not require plans to be submitted for additions to buildings. And as to the width of new streets, he would point out that no one knew what use a street would ultimately be put to. He agreed with the suggestion of Mr. MacMorran that there should be a code applicable to the country at large, and that special by-laws should then be made for urban districts. He also felt that local surveyors should be appointed by the Local Government Board in the same way as medical officers of health and sanitary inspectors, and he believed that many of the grievances arose from the miserable salaries offered by local authorities, which prohibited the engagement of good men.

Sir Wm. Chance said that having been a sufferer he had come to take interest in the reform of the building by-laws, but felt that those who were asking for reform should be much kinder to the Local Government Board and the District Councils. No doubt the by-laws were constituted to remedy evils, and there was a tendency in trying to get rid of one evil to rush to the other extreme. It had been suggested that they might draw up a code containing principles of construction and sanitation, and leave the details to some competent authority. He felt they would find it difficult to draw up principles and to separate principles from details. Another way to deal with the question might be to provide exemption clauses, but he was afraid that Councils who had already got by-laws would not agree to that. He thought it would be possible to draft a Bill which would allow a house to be put up with any material so long as there was a certain space round it, and the space might depend upon the height of the building. A great advantage of such an Act as that would be that it would encourage gardens, and another that it would deal with urban and rural districts alike. He was told that under the Building Act of London if a person liked to buy sufficient land he could build exactly as he liked, and that ought to be the case in the country.

Mr. C. J. Mann said he thought the discussion showed that an amendment of the by-laws was necessary, and they were greatly indebted to Sir Wm. Grantham for making it the pressing question of the hour. The regulations for which special attention was required were the lines of frontage, new streets, stability of buildings, prevention of fires, air space inside and outside buildings, drainage, and ventilation. It happened that often they could not use the materials which were in the district, owing to the by-laws, and that was a great hardship. With regard to the prevention of fire, many of the provisions were very costly and quite unnecessary. As to sanitary matters, they found a rural district suddenly called upon for a large and costly drainage scheme, before the place was ripe for it, and he thought such schemes ought to be carried out by degrees. He deprecated building without plans, but plans for cottages should not require specifications other than might be written upon the drawing. He felt it would be a good plan to make the by-laws as general as possible for all districts.

Mr. W. A. Casson said that for fifteen years he was in charge of the By-law Confirming Department of the Local Government Board, and had seen thousands of by-laws from all parts of the country. For years he had been in daily consultation with Mr. Percy Gordon Smith and the late Sir R. Thorn-Thorn, who made the building up of the system of by-laws which now governed the country the aim of their lives. The view they took was that in making by-laws it should be easy for those engaged in building to see what they were driving at, and that the point to bear mostly in mind was the health and comfort of those who had to live in the houses. When they came to close quarters they would find the by-laws were not such terrible things as they were made out to be. The model by-laws could be adapted to local needs, and it rested with the public at large to impose on their local authorities the conditions required. He wished to say one word in defence of rural district councils at large, and the Chailey District Council in particular. When that Council were seeking to make by-laws they were not free men, doing what they liked with their own, but they were subject to the approval of the Local Government Board. He felt, therefore, that they ought to attack the Local Government Board, and go to Parliament for a remedy of the grievances they were suffering from. The Chailey District Council did no more or no less than any local authority would have to do in the country. So long as it was the law of the land it had be complied with, and with all respect to Sir Wm. Grantham, it would have been better if an example had been set of compliance with the by-laws rather than that the Council should have been dared to do its worst. He felt that a society like the Building By-law Reform Association could do great good by finding out where the by-laws failed; but what they wanted was a Royal Commission to inquire into the working of by-laws all over the country.

Mr. J. H. Horsfield, speaking as an architect and surveyor for a District Council, and as a member for some years of a Corporation, said his experience was that District Councils had to accept the by-laws of the Local Government Board in their entirety. It was said that corporations had no dispensing powers, but practically they had. A question was put to the Committee of the Corporation, and was either carried or rejected, and there was no uniformity of practice. If they had a tribunal of appeal they would not want to refer to it very often, because so soon as a corporation knew that there was such an authority they would be very careful in what they did. As to the width of roads, he certainly thought in towns they ought not to be decreased, but in the country it did not matter very much. One point which had not been touched upon was that of building houses for the working classes. The cheapest house that could be built was a terrace house, but when they came to do that the building laws would not allow the drainage to go through the houses, and said they must have a road 13 ft. wide at the back to carry the drains. If they had to make that road the profit returned on such a class of house was not equal to that from Consols.

Mr. W. J. Jennings disagreed with Mr. Stenning as to compulsory by-laws for local authorities being uniform throughout the country. If they were he thought there would be greater hardship than at present. Some years ago in Canterbury they had by-laws which met their case very well. Then when they applied for a loan the Local Government Board came down and held an inquiry, and refused to grant any further loans unless they modified the by-laws. They sent by-laws to the Local Government Board and had them returned, and practically they were forced to adopt the model by-laws. That was a great disaster to Canterbury, where many of the best streets were narrow and many of the building plots were narrow, which made it impossible to comply with the model by-laws. The result was that they got over the difficulty by building houses in two or three parts. They never had any new buildings in Canterbury, and so they escaped the by-laws altogether. He welcomed the idea of a tribunal of appeal, and he also thought there should be better qualified men as surveyors.

Sir William Grantham said he would not have spoken but that he was anxious to take some public opportunity of thanking that great body of surveyors for the interest they had taken in his case and also the trouble they had taken to do what he thought would be of lasting benefit to this country, viz., getting some modification of the existing building by-laws and as to the methods in which they were carried out. He was rather amused with Mr. Crouch, who asked him a question as to why he robbed the architects and surveyors of some portion of their livelihood. He could give a very good excuse. If any of them wanted a pleasure—if they wanted to eat a dinner, they did not want to eat it vicariously; they wanted to eat it themselves. If they wanted to go to the theatre, they did not want that pleasure through somebody else—they wanted to go to the theatre themselves. With regard to his preparing his plans, the simple fact was that he was fond of it. He had been doing this housing work practically all his life, and he had never had a proper surveyor's plan prepared. None of the builders he had employed in the country could prepare one, because they were all local builders, and were not capable of preparing a plan which would pass the Surveyors' Institution. But they all did their work very well, and the plans he got out were sufficient. They were just rough sketches to show what was proposed. He was driven to build himself because, unfortunately, he could not get other people to do the work as he thought it ought to be done, and he just drew up a sketch which was quite sufficient for his own men to work from. Cottage building was not a paying operation—it was not a desirable investment—but it was more or less a philanthropic duty, if he might put it like that, and it was always desirable where possible to make a pleasure of duty. It was always a pleasure to do the whole thing oneself. Thanks to information he had obtained from architects and surveyors during the many years he had fought for them and against them at the Bar, he had got a familiarity with plans which enabled him to do all that was necessary for his own purpose, and so far they had always worked out quite satisfactorily. That was why it was he had gone on in the same way, and he hoped to continue, notwithstanding the existing by-laws. There was one thing which he thought was the basis of all suggested alteration—that of appeal. He had no doubt whatever if they had a properly constituted court of appeal there would be very little difficulty left. He did not agree with the formal court of appeal suggested by Mr. Stenning, but he would have the right of appeal to the County Council. County Councils, as a rule, were composed of first-class men, and they had good, honest, skilled surveyors. They could afford to pay a higher price, and could therefore get better men.

If there was this right of appeal the County Council would appoint a committee of those not interested in the district, and with their surveyor they would look at the plan and consider the question in dispute, and they would have little friction. Once the local authority found they could not act improperly without being overridden they would rarely do it again. He had had that experience. For years he had fought for the District Council taking over a parish road, and at last appealed to the County Council, and the local authority was hopelessly beaten. Now everybody said this was the best thing which ever happened. Some time after he had another road, and when he threatened the District Council with an appeal again the matter was settled at once. It was quite evident that people did not know what really happened with reference to his unfortunate dispute. It was evident that Mr. Casson knew nothing of the facts, although he appeared against him. Mr. Casson said it was a great pity that he defied the council and would not obey the by-laws, but that was not the point at all. The whole point was that it was the Rural Council who were breaking the by-laws, and he refused to be bound by them when they tried to enforce by-laws on him which did not exist. By the new model by-laws they were only entitled to have the plan of the ground floor. That was what he gave them, and they said, "We are to have a complete plan of every floor." He told them they were not entitled to them and would not have them. The magistrates in their historical findings found for him on all this. The only thing on which they found he had not done right was as to the earth closets and the ash pits. There were six by-laws in respect of the earth closets, one of which was as to the height of the seats, and there were six by-laws with regard to ash pits. He was told he had not depicted that on a small diagram, although he had on his plan sketched the outside of the closets. The Council would never tell him where he was wrong; they would not look at the plans and never had. He thanked them for the interest they had taken in the question, and they could depend upon it that the proper housing of the rural population was the basis of the difficulty of the scarcity of labour in the country and of the crowding of the population into the large towns.

Mr. Stenning thanked the meeting for the reception they had accorded his paper, and said it was so late that he thought it would be best if he replied to the criticism in the *Professional Notes*. The object of his getting out the suggested by-laws was really to put some ideas before them on one or two subjects. It was agreed, he thought, that a new code was necessary, and that was the principal thing he had suggested. Various details had been criticised which he would like to refer to in a full manner. The three leading points were the necessity of new by-laws, the tribunal of appeal, and better definitions. He thought they could select men in that room who, joined with the Institute of Architects and with the Local Government Board officials, might draw up by-laws which could be made workable and which would meet nearly every case. They might have all particulars put into the code, but a certain elasticity could be given, and with a court of appeal it would meet every case, and they would get rid of friction. The Local Government Board were the people to do it, and what they—the surveyors and others—had to do was to press that Department to take the matter up.

The Chairman said that Mr. Menzies would also reply to criticisms on his paper in the *Professional Notes*. With reference to the discussion, there was no doubt that the first thing necessary was to have some kind of legislation. Without legislation it would be absolutely impossible to get the existing by-laws recalled by the Local Government Board, because they had no power to do so.

The discussion then closed.

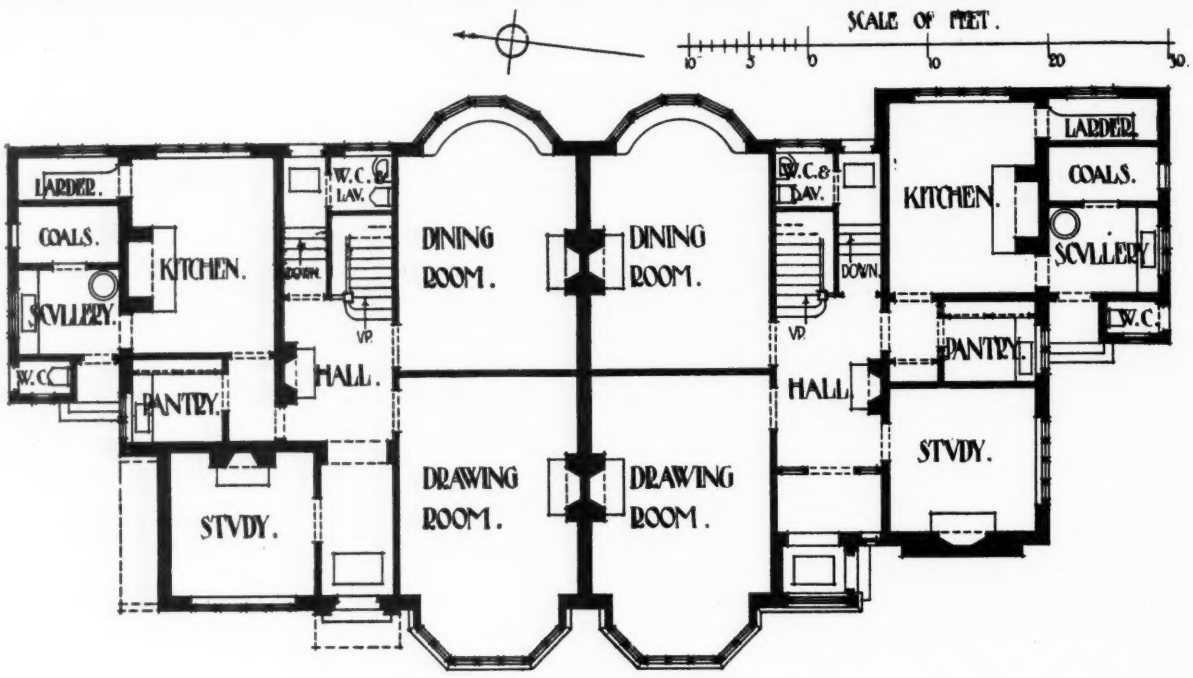
The Chairman announced that the next meeting would be held that day fortnight—February 27—when a paper would be read by Mr. Harold Griffin on "Some Proposals for Improving the Law and Practice of Rating Property."

APPOINTMENTS.—OXFORD UNIVERSITY.—Mr. C. J. Holmes, of Brasenose College, Slade Professor of Fine Art, has been elected a member of the Board of Architectural Education. The Provost of Oriel College has been nominated to represent the University at the International Congress of Archæologists to be held in Athens in the course of next April.

ARCHITECTURAL SOCIETIES.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—At the rooms of this Society on Thursday, the 8th inst., Miss Ethel Charles, A.R.I.B.A., read a paper on "Modern Architecture in London," Mr. G. B. Bulmer, F.R.I.B.A., President, in the chair. The President, in introducing the lecturer, explained that Miss Charles was the only lady Associate of the Royal Institute of British Architects. The lecturer said that London was said to contain more bad work than any city in the world for its size, though it contained some of the finest buildings in existence, but that most of these buildings had been erected during the last thirty years. Art in architecture was certainly advancing. Salt-glazed bricks were not used nearly enough, as they kept their colour and did not collect the dirt and grime like stone and brick. Slides were shown on the screen of New Scotland-yard, National Liberal Club, City of London Schools, London School Board offices, and many others, which illustrated how the general tendency of modern work was to experiment rather than to rely on tradition, how modern work was personal rather than national, and was characterised by endless diversity; and this diversity was further intensified by the complexity of modern life and modern requirements, and also by the large device of material within easy reach. Steel (unacknowledged) played a prominent part in modern designs, accounting for much of the unsatisfactory appearance of our street architecture. Many of the buildings on the Embankment were shown, as this was the most successful river frontage in Europe; it would be difficult to find elsewhere so many fine and important buildings in one street ranging from the Houses of Parliament to the Electric Light Station, and it offered excellent examples of buildings devoted to the most varied purposes. The lecturer also spoke on the question of whether to treat a building as part of a scheme or as an isolated building, but favoured the latter. There were also shown slides of various business premises in the City, as illustrative of the fact that it was to the commercial element of our social condition that we must look for the growing prospects of London architecture. A discussion afterwards followed, and a vote of thanks to the lecturer was proposed by Mr. R. P. Oglesby, and seconded by Mr. W. H. Thorpe.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—The ordinary monthly meeting of this Society was held on the 9th inst. in the Lecture Hall of the Literary and Philosophical Society, Mr. T. Winder presiding. A ballot was taken, and the following gentlemen were elected as associates: Messrs. W. A. Forsdike and J. E. Whitehead. Mr. T. Swaffield Brown then read a paper on "The Proper Relation of Design and Handicraft." The lecturer referred at the outset to the lectures and discussions of the Society on what are called practical subjects connected with art, and said that he wanted to call attention to ethical as well as practical considerations, these being generally neglected to the great detriment of art. He said that he desired to do so not because he thought he could do it well, but because he thought it needed to be done, and that it was one of the few things which had better be done ill, and often, than not done at all. It was necessary, because in these matter of fact times such subjects are jostled out of the way, although they might illuminate much which puzzles the so-called practical man, who prefers to attribute to chance or accident much which is really due to spiritual insight—as in discussions on the origin of the pointed arch and such matters. But there were signs that the efforts of great thinkers had stirred the still waters of apathy and brought to the surface one or two questions whose apparent complexity had diverted attention from their origin and hindered their solution. One of these was that of the proper relations of design and handicraft, about which much had been said and written by those whose trade it was to talk and write, but little by designers and craftsmen, whose business it was to know and to do. A designer and craftsman himself, he addressed the designers and craftsmen present as a fellow student, not as a teacher, who desired to see the elevation of art practice to a higher plane than that of its present operation generally. Generally, because there are those whose practice is at a high level, and their conspicuousness mark the exceptions which prove the rule. The architect was the arch-type of designers, because the architecture of nations is the petrified symbol of the sum of their art, and of much else of importance in their history. And even now most design and work was in some way dependent upon architecture. Therefore it seemed a fitting opportunity to speak upon the relationship of design and handicraft. He thought these were not in a healthy condition, because of the common use of the two terms as things apart, not merely qualities of the same thing as inseparable for use as soul and body. And they were not only spoken of but treated as things to be practised by separate individuals, separate classes, and in separate places. He attributed this partly to the modern propensity for analysis rather than synthesis, which concentrates attention upon parts and loses sight of the whole. And so the significance of the word Art is lost, and it is applied to what is not Art, just as "charity," religion, and so on, were applied to quite different things. But, fortunately, as a matter of practice the complete division of the spiritual and material was impossible, because no conception could become visible except through handicraft of some degree. The use of pen or pencil to record it was handicraft; but the greatest skill in the use of the chosen instrument would not produce a work of art in the absence of conception. Want of appreciation of this simple fact had caused great errors, and efforts to grasp it had led to absurd results for lack of comprehension. The former led to the destructive division of the two functions, the latter to the crippling of them by unfitting union. He then, while disclaiming any concern with any but "applied" art in this lecture, called attention to the immense utility of "gallery" art as furnishing specimens illustrative of the effective co-operation of motive, conception, and execution, unhampered by commercial or other deterrent influence, and forming precious ideals for our guidance. But it must be recognised that in applied art, although the same principles govern, their application is subject to the limitations of material, etc., and it is necessary to economise power by confining the best effort, which is the rarest, to the tasks which need it most. And this was "specialisation," which he thought was, by unwise use, the cause of much of the mischief, because it led to the arbitrary choice of unfit material for the making of the craftsman to fit the sub-division of specialism, instead of encouraging his development to his fittest place. And so the designer and craftsman lose touch of each other, and their work suffers in consequence, as well as the men. He then referred to the older methods under which the craftsman practised his craft with full scope for his power, and whose position depended upon that, and advocated the adoption of similar methods, but pointed out that the change must be gradual for fear of greater confusion. For although he attributed the mischief to over-specialisation, this in itself was but one of the results of "civilisation," and had grown with it. This civilisation had been defined as the "art of living in cities." He would prefer to call it becoming "inured" to them and insensible to the influence of beauty, and he then endeavoured to show how their incidents affected art—which was the very and only remedy for them—so that things seemed at a deadlock. But it was not so, because such societies as that showed that some men were not content to remain in apathetic indifference. The effort of the last fifty years to popularise art practice had failed because it attempted to teach the unteachable. Art could not be taught. He gave some of the results of last year's examinations in support of the statement of failure. He suggested that the remedy was a system of co-ordinate education, which, beginning in the school, should lead the child through its different stages by selection at each step, eliminating early those whose dispositions were towards mechanical or commercial pursuits, and taking the others by wise advice and guidance along the paths which their experience and tastes led them to choose, not putting them through the usual rigid course which so often leads to disgust and abandonment. He thought that this would restore the unity of art practice, and elevate the worker, creating a force which would ultimately crush the sordid influences which made our surroundings what they were.—On the motion of Mr. J. B. Mitchell-Withers, seconded by Mr. E. C. Skill, and supported by Messrs. Charles Green, J. R. Wigfull, W. C. Fenton, and Walter Rawson, a hearty vote of thanks was accorded to the lecturer.



Houses, Parkside Gardens, Wimbledon. Plan.

BRISTOL SOCIETY OF ARCHITECTS.—On the 13th inst. a lecture on "The Homes of the Courtiers of Queen Elizabeth" was delivered at the Fine Arts Academy by Mr. J. Alfred Gotch, F.S.A. The lecture was arranged by the Bristol Society of Architects, and Mr. G. H. Oatley, President, was in the chair. Mr. Gotch reminded his hearers of the universal desire in the Elizabethan reign for better homes. While this desire was being augmented both from within and without—from within by the change of ideas on the subject of household arrangements, and from without by the sight of what was being done in foreign lands—there came that notable event, the dissolution of the monasteries, which entailed the transference into secular hands of most of the immense revenues formely held by the Church. The desire for better homes and the means of gratifying it being thus present together, it only wanted the tranquillity afforded by Elizabeth's strong rule to set people building all over the land. For fully sixty years this great building period lasted, and there was hardly a village in England which could not show some work dating between the years 1560 and 1620—a period which practically covered the reigns of Elizabeth and James. The work of this period, moreover, had a flavour peculiar to itself and different from that of any other time or country. The work of the time of Elizabeth and James, whatever its shortcomings and however foreign its adjuncts, was English in its essence and always interesting. Having spoken of the pedantic quaintness which was often characteristic of Elizabeth's and James's time, the lecturer referred to the curious inscriptions, of which he said an infinite number might be collected. The lecture was illustrated by limelight views.

NORTHERN ARCHITECTURAL ASSOCIATION.—A meeting of the Northern Architectural Association was held on the 14th inst., at the Y.M.C.A. building, Newcastle, under the presidency of Mr. J. W. Taylor. Mr. Ralph Hedley delivered a lecture on "Architectural Details in Charcoal." He said the very best training for students was to practice the drawing of the human figure from life. It was the best training for proportion. In designing he did not mean that they should slavishly copy from nature or from old examples, but only that they should take them as their motive after thoroughly studying them; then arrange the pattern to their individual taste, always taking into consideration the position the design is to be seen from. If he might be so bold as to say so, he thought architects ought to work more on easels and not so much on nearly flat desks.—A vote of thanks was given to Mr. Hedley for his lecture and demonstration. The Secretary (Mr. A. B. Plummer) announced that the Royal Institute of British Architects had suggested that the annual dinner, which was deferred from last year, should be held in Newcastle this year, and it is expected that steps will be taken formally to invite the Institute to do so.

ARCHITECTURAL ASSOCIATION CAMERA AND CYCLING CLUB.—At the meeting on the 14th inst., Mr. R. Wellbye read a paper on "Old Coaching Inns," showing how intimately they were connected with the social history of all classes of people. The earliest known prototypes of the coaching inns were the monasteries, where hospitality was dispensed free to the poor and at varying charges to rich visitors. There is no known analogy between these monastic establishments and the mediæval inns, but Mr. Wellbye suggested that the latter arose to cope with the visitors frequenting the better known shrines, and instanced the "Four Swans" Inn at Waltham, which stood on the main road, while the Abbey was somewhat out of the way. The "New Inn," at Gloucester, was possibly the earliest example of these inns, and was probably built to accommodate guests for whom there was no room in the monastic buildings, since it still belongs to the Dean and Chapter of the cathedral; it was built shortly after the shrine of King Edward became well known to pilgrims. In the Middle Ages private hospitality was so general that inns were not the necessity they afterwards became, and a few date earlier than the latter half of the XVth century, although ale-houses date back to Saxon times, as the "Fighting Cocks" at St. Albans. The word "inn" is derived from a Saxon word meaning a chamber, for in early times all the guests slept in one room and often in one bed. Mr. Wellbye mentioned one large circular bed which accommodated forty persons. In speaking of the legends concerning dishonest innkeepers, Mr. Wellbye referred to "The Ostrich" at Colnebrook, and mentioned that the name was a corruption of "hospice," continuing with an account of the many names and their derivations. A number of slides were then shown of decayed and disused inns, showing how the buildings have been converted to other uses from time to time as trade fell off with the advent of railways. The paper concluded with a description of the various types of signs and their support, many of the latter being exceedingly elaborate and well designed.

Fifty Years Ago.

TOWN SEWAGE.—At a recent meeting of the Central Farmers' Club, Mr. Mechi read a paper on the extent to which town sewage can be profitably applied to the purposes of agriculture. Considerable discussion was elicited, in which Mr. Edwin Chadwick and other gentlemen bore a part. In the end a resolution was agreed to:—"That the application of sewage manure might be rendered of great advantage to agriculture if it could be supplied at a cost sufficiently moderate to warrant its use." The adoption of this resolution, reports the *Morning Herald*, was followed by much laughter. —The *Builder*, February 17, 1855.

MOTIVE POWER BY ELECTRICITY.—Mr. G. E. Dering, of Lockley, Herts., has taken out a patent for obtaining motive power from electricity. The arrangement consists of a flat surface composed of a series of electro magnets, on which is made to rock or roll, by their galvanic action, a cylinder which either itself constitutes a keeper or armature for all the magnets, or carries, or has suspended to it, a number of armatures corresponding with the electro-magnets. The object of this arrangement is that by a succession of small pulls one long stroke may be obtained, and thus the full power of every magnet secured without the loss hitherto sustained in most arrangements for producing electro-motive power.—The *Builder*, February 17, 1855.

Illustrations.

A LOUNGE AND STAIRCASE FOR A HOTEL.

THIS is the design which obtained for its author, Mr. Robert Atkinson, of Nottingham, the Tite prize of this year at the Institute of Architects.

In explanation of his intention in the design, Mr. Atkinson writes:—

"The main idea in the design was to give a structure the shell of which was capable of being erected in rough brickwork and concrete, and the decoration applied afterwards. Keeping this in view, I decided to make the decoration of thin marble slabs as much as possible, the marble columns being the only parts of the finished design to be put in during erection.

I also thought it desirable for the main staircase to go up to nearly the top of the hotel and the lounge itself to run up through two stories; this I did by making galleries level with the springing of the large arches and connecting them by small arches through the thickness of these larger arches.

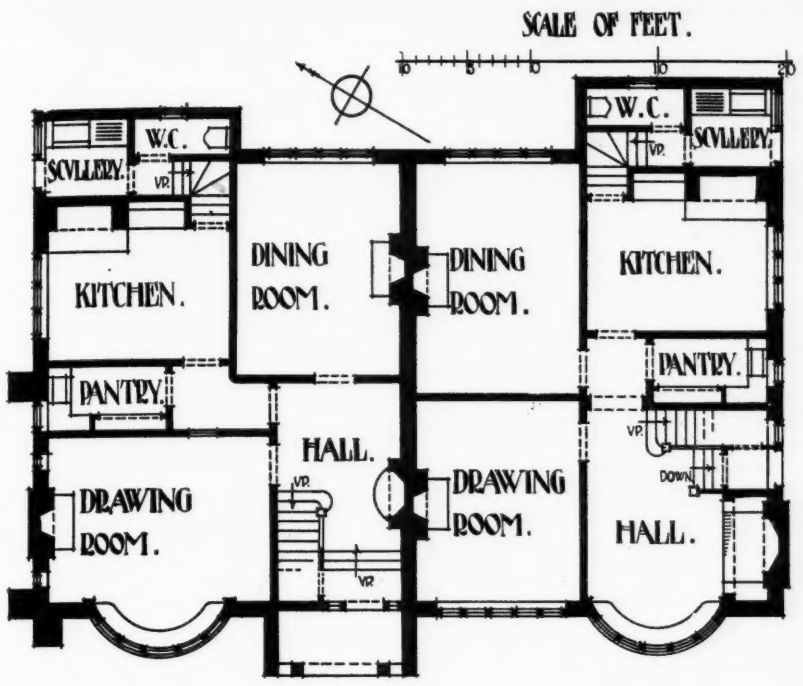
The chief difficulty was in working in the height of 35 ft. given by the conditions, this height only being sufficient for a very flat saucer dome.

The lighting is principally by the large lantern and a large semicircular window in one side."

HOUSES, WIMBLEDON.

THE two plates show two sets of semi-detached houses at Wimbledon, by the same architects, Messrs. Hubbard & Moore.

The houses were built for the Wimbledon House Estate Co. on their estate at Wimbledon, and an endeavour has been made to conceal the party wall parapets as much as possible. The materials used in the Parkside Gardens building were red Crowborough brick facings, rough cast, and Broseley tiled roofs. The



Houses, Burghley Road, Wimbledon. Plan.

contractors were Messrs. J. C. Richards & Co., of Paddington.

The Burghley-road houses are all in rough-cast, with green slates. The contractor was Mr. F. G. Minter, of Putney.

SCHOOL BATH CENTRE, AMSTERDAM.

THESE drawings illustrate a municipal establishment at Amsterdam for giving children from the primary schools a cleansing bath in a very short space of time, by a collection of douche baths arranged round an octagonal apartment and controlled by an attendant in the centre of the room.

The plans are traced from drawings lent to us by Miss Alice Ravenhill, who referred to the subject at the School Hygiene Congress last week, and who has furnished us with the following description of the establishment and its working :—

"At a time when public attention is being directed to the factors which make for health, the following description of a most successful school-bath centre at Amsterdam cannot fail to be of interest to those interested in the co-ordination of measures for the promotion of national well-being with the existing machinery for elementary education, especially in view of the fact that German school hygienists admit its superiority to anything of the kind at present to be found in that country.

The maintenance of a high standard of well-being demands strict and regular attention to personal cleanliness, as well as the provision of suitable food and the occupation of wholesome houses. To the neglect of thorough and systematic washing of the whole body are attributed many of the skin and other physical troubles which hamper satisfactory development among the Dutch population ; for it is a curious fact that in a country where water is always at hand in abundance, and where domestic cleanliness has been developed into a fine art, neglect of ordinary personal cleanliness prevails to a serious extent among the industrial population. It is also a well-known fact that self-respect invariably suffers where dirt in any form is habitually tolerated, so that the results are injurious to morals as well as to health ; for both reasons, therefore, vigorous efforts are now active in Holland to combat this prevalent disregard of one of the first principles of hygiene.

It is some years since the first efforts were made to develop habits of personal cleanliness in the scholars of the poorest quarters of Amsterdam by the practical method of weekly baths. Various attempts to adapt disused class-rooms or gymnasia proved unsuccessful, until in 1900 the problem was satisfactorily solved by the erection of a school-bath centre, where seven classes a day, or about 2,000 children a week, go through a most complete cleansing process. To meet the need for such ablutions among a much larger proportion of the school population, it has been recently decided to erect a second centre, planned on very similar lines; though it is hoped that certain disadvantages which exist in the first building will be avoided. Of the detail plans which I have permission to publish, those of the bath cubicles are designed for the new building ; while the ground plans and elevation are those of the existing centre. Through the great courtesy and kindness of Dr. Gunning, Chief Inspector of Schools, and of Mr. Van Hesselt, Director of Public Works, I am also able to supply useful details as to cost and working expenses, for the information of English readers.

The elevation, with its timber and plaster walls, is homely, artistic, and appropriate. Within, the fittings are simple and strong. I recently had the pleasure of inspecting every portion of the building, except the rooms occupied by the caretaker and his wife, who act also as bath man and woman. A small room on each side of the entrance is reserved for committee and official purposes ; each class, on arrival with the teacher in charge, marches past these into the waiting-room, where, if necessary, a pause can be made while the class which preceded it passes out. Five minutes is allowed for unclothing, under the teacher's supervision, in the dressing-room, which is well warmed, and supplied with pegs and benches ; the children then pass into the douche-room before removing their under-garments, which are taken off on entering the bath cubicle and placed on small benches in front of the occupants. A five minutes douche follows at 104 F., the water being regulated from the centre by the bath attendant, both as regards temperature and volume. Each child is then required to soap thoroughly all over, a tin receptacle for soft soap being attached to each cubicle, for this five minutes is also allowed. A second douche follows, the temperature of the water being gradually cooled down to 90 F. At a given signal each child then steps out on to a cork mat in front of his cubicle, and five minutes is allowed for a brisk rub with a dry, rough towel ; the under-garment is then resumed, and five more minutes is usually found enough to complete the toilet in the dressing-room.

Experience proves that an hour's absence from school and half-an-hour at the bath centre, is sufficient to satisfactorily accomplish the whole process, with manifest advantages to the physique and habits of the children who have attended the centre for some time. Where a morning is set apart for boys to bathe, girls attend in the afternoon, and so on alternately.

As classes in Dutch elementary schools are not allowed to contain over forty pupils, both bath centres are designed to accommodate this number at one time ; the circular douche-room has, therefore, forty cubicles, each of which measures 27 in. at the entrance, and widens out to 32½ in. at the back, the length being 41½ in. The partitions in the existing centre are made of corrugated iron, but this is to be replaced in the new bath-house by opaline glass plates, ¾ in. thick and 43 in. high ; a space of 9 in. being left open between their base and the floor. At the back the partitions are fixed to the wall, in front an iron framework affords support (see Detail C), these frameworks are coupled at the top by a flat iron rod. A handle is to be attached to the opaline partitions on each side (C), by means of which the children can support themselves when washing their feet. The wall at the back of each cubicle is tiled to a height of 63 in., above which it is painted with 'ripolin.' The floor is concrete, paved with tiles laid at a slight inclination from the centre to the cubicle ; a circular gutter, also concrete, runs round the walls, and traps are placed at intervals through which the water is carried off by iron pipes to the city conduit.

Wooden gratings have so far been used on the cubicle floors (E), but are to be replaced by cork slabs (as shown at F) in the new building, as the wooden gratings prove unsatisfactory. Not only do they become shabby and worn, but occasionally small accidents occur to the feet from splinters.

In each establishment the pipes are so arranged that 10, 20, 30, or 40 shower baths can be taken at one time.

The cost of building and fitting the existing centre was 1,578*l.*, exclusive of the site.

The annual expenses amounted to 57*l.* in 1901, to 255*l.* in 1902, and to 266*l.* in 1903.

The centre was opened in September, 1901, and the number of baths taken to December 31 was 28,924 ; in 1902 the total reached was 88,582, and remained about the same in 1903.

The cost of each bath taken in 1902 and 1903 works out at 7d., but in this estimate no allowance is made for the value of the site, nor of the fact that the money for building was borrowed on a 4 per cent. loan with a yearly amortisation of 2 per cent."

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, S.W., Mr. J. Williams Benn, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend Fulham Borough Council 15,000*l.* for street improvements and 30,000*l.* for provision of burial ground ; and Hammersmith Borough Council 3,000*l.* for site of baths and wash-houses.

The Strand Scheme.—The Improvements Committee presented a report with regard to letting the crescent site of the Holborn to the Strand improvement for a French exhibition and theatre. The Committee recommended :—

"That Mr. W. Gillbee Scott, F.R.I.B.A., and M. Ernest Gérard, acting on behalf of a French syndicate, be granted an option, to be exercised within six months, for taking up a lease for ninety-nine years, at a rent of 55,000*l.* per annum, of the central portion (having an area of about 123,350 sq. ft.) of the crescent site formed in connexion with the Holborn to Strand improvement ; that the letting be subject to the result of the usual inquiries proving satisfactory, and subject to an agreement to be prepared by the Council's solicitor ; that the Improvements Committee be authorised to complete the matter on the basis (1) that one year's peppercorn be allowed and that the rent for the second and third years be at the rate of 27,500*l.* per annum ; (2) that one year's ground rent (55,000*l.*) be paid to the council upon the signing of the building agreement ; (3) that no public drinking bars be allowed other than those proposed to be used in the theatre during the performances, and that these be subject to the usual requirements of the Lord Chamberlain ; (4) that the buildings be erected and the grounds laid out in accordance with plans to be approved by the Council ; (5) that no departure from these plans be allowed without the previous sanction of the Council ; (6) that no part of the site or of the buildings thereon be sublet without the sanction of the Council ; and that the seal of the Council be affixed to any necessary documents."

In reply to Sir M. Beachcroft and others, Mr. Davies, Chairman of the Committee, said there was no sum specified as to the amount to be expended on buildings on the site. The applicants had agreed to deposit 55,000*l.*, one year's rent, in taking over the building agreement.

Mr. Radford moved that the recommendation be referred back to the Committee. A point of cardinal importance was that the Committee did not know whether the buildings to be erected on this site would be sufficient to secure a ground-rent of 55,000*l.*

Mr. Spokes seconded the amendment, and characterised the proposal as both objectionable and unbusinesslike. Such an option as this should not be granted without the most substantial deposit, to be forfeited in case the option was not exercised. The money would probably be raised in France, and it might be by the objectionable process of lottery bonds.

Mr. Burns, M.P., said he should vote against the scheme. He believed that if they would only wait a little until such time as the money market improved, they would be able to get for this splendid site of $2\frac{3}{4}$ acres a value commensurate with what was offered by this syndicate, and have property put upon the land more in keeping with the amenities of the spot than this scheme for "Paris in London," which had so fascinated his colleagues. He protested against the best street in London being solely relegated to music-halls and casinos.

Captain Hemphill supported the recommendation, on the ground that it was a wise course for the Council to let its land for amusements which it would so well have under its control.

Sir W. Richmond said he intended to vote with the Committee, but he thought the term "Paris in London" rather objectionable. They should not reject a scheme of this kind simply through insular prejudice. If the land was not let to the syndicate they would get upon it monstrous great houses which would overshadow the whole neighbourhood. The designs for the proposed new buildings were in the hands of a British architect, and the Council would be able to see that the terms of the lease were faithfully carried out.

Sir M. Beachcroft said that as business men they ought to wait until they got offers to cover this land with buildings at rack-rents which ought not to be less than three times the amount of the ground-rent. As a matter of business the scheme stood condemned, and he would rather that the Chairman took it back than face an adverse vote. He moved that the debate be adjourned, in the hope that the scheme might be withdrawn.

The motion was lost.

Mr. Granville-Smith supported the scheme on the ground that it would add to the architectural beauty of this part of London.

The Council divided on the amendment, and the matter was referred back.

Rotherhithe Tunnel and Rehousing.—The Bridges Committee recommended :—

"That application be made to the Secretary of State for the Home Department for the modification of the scheme for providing accommodation for persons of the labouring class displaced on the south side of the River Thames in connexion with the construction of Rotherhithe tunnel, so that the Council may be allowed to defer for the present the erection of dwellings on the Albion-street and Clarence-street sites."

The following amendment, by Mr. Pomeroy, seconded by Mr. Glanville, was accepted by the Chairman of the Committee :—"That the words 'the present' be omitted, and that the words 'two years' be substituted therefor."

The recommendation, as amended, was agreed to.

Greenwich Tunnel.—The same Committee recommended, and it was agreed :—

"That the supplemental estimate of 23,350*l.* submitted by the Finance Committee be approved; and that expenditure of sums not exceeding that amount in all be sanctioned for the acquisition of property and the payment of compensation claims in connexion with the construction of Greenwich tunnel."

Holborn to Strand—Elevation of new "Morning Post" Premises.—The Improvements Committee reported as follows :—

"It is provided by section 40 (13) of the Council's Improvements Act of 1899, that the elevation and exterior design of the buildings to be erected by Lord Glenesk for the re-instatement of the *Morning Post* premises shall be subject to the reasonable approval of the Council. Plans of the suggested elevation have been submitted to us for the Council's approval under this section. The elevations will be somewhat French in style, and will be erected in grey granite (unpolished) or Portland or other approved stone. The actual material to be used has not yet been determined by Lord Glenesk. The building will have frontages to the Strand, Aldwych, Exeter-street, and Wellington-street. The plans show that the portion of the building fronting the Strand will be surmounted by a dome; we do not agree, however, that the main architectural feature of this building, namely, a dome, should correspond in character, but not in scale, with that on the Gaiety Theatre, having regard to the proximity of the two buildings. We have represented this view to the architects acting for Lord Glenesk, but they do not see their way to amend their plans. In view of the terms of the section mentioned above, however, we do not feel justified in advising the Council to make the alteration of the dome a condition of the approval of the plans."

The Committee recommended accordingly, and it was agreed.

Mr. Davies, in reply to some discussion, said that the matter was an important one. The design of the building was an excellent one, but the corner dome was small. Sir Wm. Richmond had interested himself in the matter, and the Committee hoped that his intervention would have a satisfactory result.

Indication of Houses of Historical Interest.—The Local Government Records and Museums Committee reported that they consider that the residence of Sydney Smith, at No. 14, Doughty-street, W.C., should be commemorated and their recommendation, "That a tablet be affixed to No. 14, Doughty-street, W.C., to commemorate the residence of Sydney Smith thereat," was agreed to.

London Squares and Enclosures (Preservation) Bill, 1905.—The Parliamentary Committee recommended, and it was agreed, that the London Squares and Enclosures (Preservation) Bill, 1905, be amended so as to permit of the rebuilding of the existing dwelling-house to an altered line of frontage, and the provision of new outbuildings to the school situate in Wellclose-square, Whitechapel.

Duke of York's Theatre.—It was agreed to inform Mr. W. Emden that the Council has no objection, so far as its regulations under section 12 of 41 and 42 Vict., cap. 32, are concerned, to the arrangements shown on the plan submitted by him with regard to Nos. 24, 31, 36, 39, and 47 of the Council's suggestions for the improvement of the Duke of York's Theatre, provided certain conditions were complied with.

The Building Act and the City Mills Building, 1, Upper Thames-street.—The Building Act Committee reported on the result of the coroner's inquest on the fire which occurred at the City Mills Building, 1, Upper Thames-street, on January 17, and the jury's rider, *i.e.* :—"We are of opinion that the building is not of suitable construction for the business carried on therein, and that ample and adequate means of exit should be immediately provided for the safety of the persons employed there, we being of opinion that it is a most dangerous place in case of fire"; and they recapitulated the action taken by the Council with regard to these premises. In the course of the report the Committee referred to the case heard before Mr. Justice Buckley arising out of an award on an arbitration in which the owner of the buildings was required to do certain work. The judgment was to the effect that the umpire was not justified in requiring the Council to serve, and consequently the Council was not justified in serving, a notice requiring the owner to do any works for providing a means of escape for the persons employed in the portion of the building occupied by Messrs. Farwig & Co. as a factory, through the portion of the building occupied by Messrs. Spiers & Pond as a factory, and, conversely, that the notice could not require the owner to do works in Messrs. Farwig's portion of the building for the benefit of the persons employed in Messrs. Spiers & Pond's factory. Proceeding, the Committee reported as follows :—

"We pointed out that the effect of the judgment appeared to be to make it practically impossible for the Council to deal with any 'old' factory premises, other than those which were wholly in one occupation and those which were 'tenement' factories within the definition contained in the Act, as construed by Mr. Justice Buckley, *i.e.*, premises the whole of which was occupied as factories, the mechanical power for which was supplied from one common source; and that it would be easy for the owner of a factory building, by letting such building to more than one occupier, to nullify the provisions of section 14 of the Factory and Workshop Act, 1901. The judgment increased the difficulty, caused by questions of trespass, which the Council had always experienced in the discharge of its duty under the Factory and Workshop Acts with respect to the provision of means of escape in case of fire. As showing the serious nature of this difficulty it was stated that of 106 cases within the City remaining to be dealt with, 26 could not be effectively dealt with owing to questions of trespass, and of these 26 cases 22 were classified as dangerous. As the Council could not take any further action in the matter, the whole of the facts were communicated to the Home Secretary with an intimation that the Council would in future remit to him all cases with which it was unable to deal effectively under the present law.

The building consists of basement and ground and seven floors over; the floors are in various occupations. The building is about 220 ft. in depth from north to south, and there is only one means of escape from each floor, and this is situated at the north end of the building. The escape from the seventh and sixth floors is by a wood staircase of step-ladder construction in the north-west angle of the building, open on the seventh floor, and enclosed with wood partitions on the sixth floor, and with brickwork from the sixth floor downwards to the street. There is no communication from the floors below the sixth floor to this staircase, and within the enclosure there is a lift shaft, divided from the stairs by a wooden partition only. A similar staircase enclosed with brick walls at the north-east angle of the premises affords escape from the fifth and floors below into the street. The number of persons employed is 354, and the number above the ground floor is 277. From a consideration of the description of the building it will be evident that the danger from fire to persons employed in the building is very great. The two top floors are occupied by persons employed in making packing-cases, and there are numerous unprotected gas stoves for heating soldering-irons. On the other floors there are great quantities of inflammable materials, especially on the first, ground, and basement floors where straw is stored for use in connexion with packing and distributing goods from Messrs. Spiers & Pond's grocery stores. There is only one means of escape from each floor, and that of unsatisfactory construction, and in the event of a fire occurring on any floor people working at the end of the building, remote from the staircase, would have to traverse 220 ft. through flames and smoke, across a floor covered with obstructions. There would be no escape for a person on the upper floors if the staircase became involved, and even if access to the roof could be obtained there would be no chance of escape except by jumping from a height of about 90 ft. into the street or the river Thames. It will thus be seen that a fire occurring in such a building when the workpeople were on the premises would almost certainly be attended with serious loss of life.

When the Factory and Workshop Act, 1901, was under consideration in Parliament, amendments to meet cases such as the City Mills buildings were suggested by the Council, but the Government did not see its way to adopt them. Some of these amendments have been included in the Factory and Workshop Act, 1901, Amendment Bill, which was introduced into Parliament in the session of February, 1904, by Mr. H. J. Tennant, M.P. As showing the need for further powers to secure the provision of reasonable means of escape in case of fire from buildings in which numbers of persons are employed we would invite attention to the following particulars with regard to the work under the Factory and Workshop Acts which were given in the annual report of the proceedings of the Council for the year ended 31st March, 1904.

Approximate number of persons employed in—

Factories, etc., in which means of escape have been provided to the satisfaction of the Council—		
Old factories	60,000	
New „	37,500	
		97,500
Factories, etc., being dealt with by the Council		71,000
Factories, etc., remaining to be dealt with		70,000
Factories, etc., notified to the Council, but with which the Council cannot deal		16,000
		254,500

The total number of persons employed in all factories and workshops in London was given as 499,333, in the report of the Chief Inspector of Factories and Workshops for the year 1898, the last annual report in which this information is given.

The number of persons employed in indoor occupations, which for the most part involve work in factories, workshops, warehouses, and other business premises, may be estimated from the figures given in the report of the statistical officer of the Council on the census returns as considerably more than a million. It therefore follows that a very large number of persons are working and possibly living in buildings, the owners of which cannot be required to provide reasonable facilities for escape in the event of fire, as the Council, which is the authority for enforcing the provisions of the existing law with regard to the means of escape in case of fire, has no power to deal with many buildings in which the danger from fire is very great owing to the want of legislation on the subject. There can be no doubt that the City Mills is but one of numerous buildings in the City and elsewhere in the County of London the construction of which renders them in the event of fire extremely dangerous both to life and property.

The London Building Acts Amendment Bill, 1905, contains clauses which have been framed with the object of removing as far as practicable the danger to life and property in the county of London, arising from the inadequate provisions in the existing law for securing means of escape in case of fire, and for preventing the spread of fire. In our opinion the question of dealing with the construction of buildings so as to prevent the spread of fire is so intimately connected with that of the provision of means of escape, that the two questions should be dealt with together, and at the earliest opportunity.

We may remipd the Council that the London Buildings Acts Amendment Bill, which was introduced into Parliament in 1903 and subsequently withdrawn, was the outcome of an action of the Home Secretary, who, in August, 1902, wrote to the Council stating that, in view of the facts disclosed at the inquest on the Queen Victoria-street fire, he thought that the question of further legislation on the subject of safety from fire in high buildings required early consideration; that in his opinion the matter could not be adequately dealt with by a mere extension of the powers of the Council under the Factory and Workshop Act, 1901, and he was therefore disposed to think that any new legislation should take the form of an amendment of the London Building Act, 1894; that as this Act was a local Act any amendment of its provisions would naturally be by a private Bill promoted by the Council, and that he would be glad to assist in any proposal that might be made for that purpose next session so far as it might be possible for him to do so. The Home Secretary subsequently informed the Council that he would have no objection to the extension to existing buildings of the clauses with respect to means of escape from fire, under proper conditions and in suitable cases, provided adequate provision were made for allowing the owners or occupiers of existing buildings an appeal to an arbitrator or to some other tribunal. . . .

In the inquiry which was held by the City coroner as to the fatal fire which occurred in Queen Victoria-street on 9th June, 1902, Mr. E. Woodthorpe, district surveyor for the northern division of the City, gave evidence which may be accepted as a fair statement of the facts. He stated in the course of his evidence that the provisions of the Building Act with regard to the protection of life from fire were inadequate; that as far as he could see no statutory provision was contravened in the construction of the building in question; that there were many buildings in his district which were veritable death-traps, and some alterations in the Acts and stringent regulations ought to be made. There were hundreds of buildings in the City without proper means of escape from fire, in many of which large quantities of inflammable goods were stored, and in the Metropolis there were thousands of such buildings in which frequently the only staircase and means of egress was blocked up with inflammable goods. In his opinion, section 63 of the Act of 1894 as to the provision of means of escape in high buildings was excellent, but it applied only to a very few cases. The County Council had done an immense amount of good in seeing the provisions of the Factory and Workshop Act, 1901, with regard to means of escape in case of fire, fearlessly carried out, and had made themselves unpopular by so doing. In the case of the Cripplegate

fire the alterations required by the Council had been finished just before the fire occurred, and if these alterations had not been carried out there would have been a great loss of life. He considered that there should be more stringent regulations for factories in which not more than forty persons were employed, and that dwelling-houses should also have a means of escape.

It is unquestionably a fact that there are numerous buildings in the City and elsewhere which are nothing less than death-traps in case of fire. The London Building Acts Amendment Bill contains clauses which would deal with the more pressing dangers indicated, and in view of the opposition being raised in some quarters to that measure we think it would be desirable to send copies of this report to persons interested in the Bill.

It may be well to call the attention of the Council to the fact that the City of London (Escape from Fire) Bill, which is being promoted in the coming session of Parliament by the City Corporation, although intended to secure the provision of means of escape for the many workmen employed on business premises in the City, would be entirely useless from the point of view of affording protection in a building like the City Mills and in numerous other buildings. We recommend—That a copy of the above report with respect to the City Mills building be sent to the Secretary of State for the Home Department, the London members of Parliament, the City Corporation, the Metropolitan Borough Councils, and other authorities who may be opposing the London Building Acts (Amendment) Bill."

Mr. Stuart Sankey said that the Committee need not have referred to the City Bill in the way they had. As a matter of fact, the Council's Bill was opposed by all the various authorities and professional societies, and it was not at all likely to pass. The Council would not get out of its promotion for less than 10,000*l.*, and he objected to spending money on the printing of such observations as were contained in the Report of the Committee. The City Bill, on the other hand, was a short one of three or four clauses, having to do with protection from fire, and it contained none of those drastic proposals such as were to be found in the Council's Bill.

Mr. Spokes said that the authorities opposed to the Council's Bill represented vested interests.

Mr. E. Smith said that the City Mills Building was from basement to roof a death-trap. There had been three fires there, and fortunately they had occurred in the early morning; had people been working there at the time the results would have been serious.

After further discussion, the recommendation was agreed to.

Holborn to Strand and Southampton-row—Tramway Subway and Paving, etc., Works.—The Joint Report of the Highways and Improvements Committee recommended :—

a) That the working drawings, specifications, bills of quantities, and estimate of the cost (44,400*l.*) of the paving and other works, including the construction of the portion of the tramway subway for the section of the Kingsway between Great Queen-street and the premises of the Metropolitan Electric Supply Company in Sardinia-street be approved, and be referred to the Works Committee with a view to the work being undertaken without the intervention of a contractor.

(*b*) That additional expenditure, not exceeding 250*l.* be authorised in respect of the employment of a resident engineer and of clerk of works in connexion with the paving and tramway subway, etc., works in the Holborn to the Strand and Southampton-row improvements, now being or about to be undertaken under the direction of the Works Committee.

The recommendations were agreed to.

The Council adjourned soon after seven o'clock.

HAMPSTEAD HEATH PROTECTION SOCIETY.—The eighth annual report of the Society states that the hon. secretaries, Miss Emily Field and Mr. Pooley, having expressed a desire to be relieved of their duties, tendered their resignation, which was accepted with great regret, and Mr. A. H. Heath has undertaken to act in their stead. The committee take this opportunity of expressing their feeling (in which we entirely concur) that the Society is very greatly indebted for its existence to the initiative of Miss Emily Field, and that the success it has attained is largely due to her. The committee had expressed to the London County Council its regret that any removal of a tree and any lopping of branches in excess of legal requirements from the trees of the public ground to the north-west of the Pryors, East Heath-road, should have been considered necessary, and had also inquired of the London County Council if there would be any objection to the superintendent of the Heath conferring with the Society previous to any proposed interference with any of the older trees. This was declined, but it was added that the (L.C.C.) Committee would be prepared to give immediate attention to any representation from the Society. The committee express great satisfaction that the appeal inaugurated by Mrs. Barnett for subscriptions to purchase the 80 acres of grass lands adjoining Wildwood Farm, to the north-west of the Heath, has been successful, and that these fields will, as soon as practicable, be handed over to the London County Council for the benefit of the public in perpetuity.

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses :—

Lines of Frontage and Projections.

Hackney, North.†—A workshop at No. 18, Church-road, Southgate-road, to abut upon Culford-road, De Beauvoir Town (Mr. R. J. Smellie for Mr. A. C. Marks).—Consent.

City of London.—A projecting balcony at the fourth story level of a new building on a site abutting upon the north side of Budge-row and east side of Sise-lane, City (Mr. J. S. Gibson for Messrs. Holloway Brothers, London, Ltd.).—Consent.

Holborn.—Oriel windows at the "Camden" public-house, No. 18, Fore-street, Holborn (Messrs. F. J. Eedle & Meyers for Mr. M. Hildyard).—Consent.

Islington, West.†—Buildings upon a site abutting upon the north side of Wharfdale-road and east side of Crinan-street, Islington (Mr. W. G. Green for Mr. C. Pedlar).—Consent.

Norwood.—A library building on a site abutting upon the western side of Herne Hill-road and southern side of Ferndene-road, Norwood (Mr. H. J. Smith for the Council of the Metropolitan Borough of Lambeth).—Consent.

Wandsworth. — Houses with projecting porches and bay windows on the eastern and western sides of Derington-road, Tooting (Mr. R. Robertson for the Housing of the Working Classes Committee of the Council).—Consent.

Poplar.—Additional story to the Wesleyan Seamen's Mission building, Jeremiah-street, East India Dock-road (Messrs. Gordon & Gunton for the trustees of the Seamen's Mission).—Refused.

Width of Way.

Southwark, West.—Buildings on a site abutting upon King's Head-yard and White Hart-yard, Southwark, with external walls at less than the prescribed distance from the respective centre of the roadways of such streets (Messrs. Barlow, Roberts, & Thompson).—Consent

Formation of Streets.

Lewisham.—That an order be issued to Mr. J. Stanford, sanctioning the formation or laying out of a new street for carriage traffic to lead from George-lane to Hither Green-lane, Lewisham, and in connexion therewith the widening of Hither Green-lane and George-lane.—Consent.

Lewisham.—That the application of Mr. G. Trotman for an extension of the period within which the roadways of a new street for carriage traffic in continuation of Garthorne-road, Honor Oak-road, Lewisham, and of a new street for foot traffic only to connect Beadnell-road with such proposed new street for carriage traffic, were required to be clearly defined throughout by posts and rails or so otherwise as the Council might permit, and thrown open to the public as highways, be granted.—Agreed.

Wandsworth.—Formation or laying out of new streets for carriage traffic out of Tooting Bec-road and Upper Tooting-road, Upper Tooting, Wandsworth (Mr. A. Wellings).—Refused.

Cubical Extent.

Hammersmith.—The carrying of shafting and conveyors through one of the party walls at the Manbré Saccharine Works, Brandenburgh-road, Fulham (the Manbré Saccharine Company, Ltd.).—Consent.

Space at Rear.

Fulham.—A deviation from the plan approved for the erection of buildings on a site on the north side of Dawes-road, Fulham, to abut also upon Hannell-road, so far as relates to the erection of water-closets at the rear of the buildings (Messrs. Batty & Eckert for Mr. W. Fewster).—Consent.

Space at Rear and Alteration to Building.

Hampstead.—An additional story on the existing addition at the rear of "Bank House," England's-lane, Hampstead, abutting upon Stanley-gardens, without the existing walls being increased in thickness so as to be in accordance with the first schedule of the said Act (Messrs. W. Littlewood & Son and Mr. J. Lawrence, jun., for Mr. H. F. Simlett).—Consent.

Means of Escape from the Top of High Buildings.

Kensington, South.—Means of escape in case of fire proposed to be provided, in pursuance of section 63 of the Act, from the sixth (top) story of No. 39, Kensington-square, Kensington, the upper surface of the floor of which story is above 60 ft. from the street level, for the persons dwelling or employed therein.—Consent.

Cabmen's Shelter on the Victoria-embankment, Strand.—A cabmen's shelter on the Victoria-embankment, near Savoy-street, Strand (Mr. C. McL. McHardy for the Cabmen's Shelter Fund).—Consent.

The recommendations marked † are contrary to the views of the local authority.

COMPETITIONS.

WALLASEY TOWN HALL.—Messrs. Briggs & Wolstenholme and Arnold Thornely write to say that the name of Mr. Thornely should have been included in our last week's notice, as one of the joint authors of the first premiated design. The mistake was not ours. It is not decided to exhibit the designs publicly; they are still under the consideration of the committee.

PUBLIC BATHS AT TOOTING.—The Baths and Wash-houses Committee of Wandsworth Borough Council reported on Monday having decided to erect, at a total cost not exceeding 6,000*l.*, baths on the front part of the site of the Tooting Vestry Hall, facing the High-street. Provision is to be made for sixteen first-class and twenty-four second-class spray baths for men and eight second-class slipper baths for women. Six architects, to be selected by the Committee, will be invited to submit designs, and the Committee will select one of these for adoption by the Council.

BOOKS RECEIVED.

CATALOGUE OF ZODIACS AND PLANISPHERES, ANCIENT AND MODERN. By the Rev. A. B. Grimaldi. (Gall & Inglis.)

BUILDING MATERIALS—THEIR NATURE, PROPERTIES, AND MANUFACTURE. By G. A. T. Middleton, A.R.I.B.A. (B. T. Batsford. 10s.)

TOOLS FOR ENGINEERS AND WOODWORKERS. By Joseph Horner, A.M.I.Mech.E. (Crosby Lockwood & Son.)

LIVES OF THE ENGINEERS. By Samuel Smiles. Popular edition. Telford: Boulton and Watt: George and Robert Stephenson. (John Murray. 3s. 6d. per volume.)

GAS PRODUCERS FOR POWER PURPOSES. By W. A. Tookey. (Percival Marshall & Co. 1s.)

NEOLITHIC DEW-PONDS AND CATTLE-WAYS. By A. G. Hubbard, M.D., and G. Hubbard, F.S.A. (Longmans, Green, & Co. 3s. 6d.)

THE POETRY OF ARCHITECTURE. By John Ruskin. (Geo. Allen. 6s.)

THE INVENTOR'S ADVISOR. By Reginald Haddan. Sixth edition. (Harrison & Sons.)

Correspondence.

RURAL BY-LAWS.

SIR,—It is possible that some of your readers may have had some experience of the quite unnecessary obstacles which the by-laws enforced by many rural councils place in the way of building operations. If any such wish to assist in improving the present state of things a suggestion may perhaps be taken from the action of the South Stoneham District Council, which, as reported in the *Hampshire Independent* of February 4, 1905, unanimously agreed to the following proposition :—"The attention of this Council having been called to the following resolution passed by the Royal Institute of British Architects on January 9, 1905—'That in the opinion of this meeting it is desirable that the Local Government Board should obtain Parliamentary powers to enable them to reform the by-laws now in force in rural districts and in the smaller towns with a view to the enactment of such by-laws, and such by-laws only, as are really required in the public interest'—it is resolved that the Clerk of this Council be instructed to communicate with the Local Government Board informing them that the resolution of the Royal Institute of British Architects has the sympathy and support of this District Council."

If similar resolutions are passed by a few more councils it will strengthen the position of the Local Government Board when they endeavour to obtain the powers referred to, and it is probable that many readers of your influential paper are in positions in which they can bring the matter to the notice of the local authorities.

The paper read before the Royal Institute of British Architects on December 19 last by

Mr. Lacy W. Ridge will give full particulars and suggestions for amendments to rural by-laws, but the principal thing now appears to be to get the Local Government Board to take the matter up in a practical manner.

N. C. H. NISBETT.

CUDWORTH RAILWAY ACCIDENT.

SIR,—I notice your leaderette *re* above. It is astounding to learn that we narrowly escape, it may be, thousands of accidents in fog when travelling by rail simply because, though detonators are kept in every signal-box, the signalman cannot fire them, and that, in all these years, the railway companies have been satisfied with the original and crude method of laying a detonator on the rail for the passing engine to set off with its wheels. It would be perfectly simple to have a detonator on a bracket upon the outer wall of the signal-box, and to fire it by a lever inside. The signalman then would have no need to leave his box, but, if a train ran past his signal, would merely have to pull a lever, fire the detonator, and hold up the train. A detonator fixed on a seat and fired (pin-fire) by an ordinary gun-lock, the trigger of which was pulled by a rod leading to a lever inside the box, would do perfectly well. TRAVELLER.

A.A. DISCUSSION SECTION.

SIR,—Would you kindly give me space to correct a statement in your last number.

At the meeting of the Discussion Section of the Architectural Association, held on February 1, I did not say that I considered the Albert Memorial a *successful* modern example of step treatment as reported.

The bald statement also that I considered St. George's Hall steps unsuccessful gives quite an erroneous impression of what I actually said. THEODORE FYFE.

*** We had no reporter present; we are indebted for the report to the kindness of a member of the Discussion Section. The room is a difficult one to hear in; and perhaps speakers do not always realise that uncertainty in a report may in some cases be the fault of the speaker as much as the reporter.—ED.

WESTMINSTER CITY COUNCIL.

THE fortnightly meeting of this Council was held on Thursday last week at the City Hall, Charing Cross-road.

The Dispersion of Fog.—The Committee reported having received from the City Engineer a report on his visit to Birmingham to inspect Sir Oliver Lodge's apparatus for the dispersion of fog.

Closing of Brewer-street, W.—On the recommendation of the Committee it was agreed to accept the offer of Messrs. Watney & Co. "to pay the Council the sum of 1,600*l.*, to bear all attendant costs, and to round off the corner of Brewer-street" in connexion with the closing of that portion of the street which is used only for the firm's business, and which, when their work is over and the existing gates closed, forms a very undesirable *cul de sac*. The Council will support the application to the justices.

Reinstatement of Trenches.—It was agreed that a notice should be sent to the various undertakers having power to break up the streets of the City, pursuant to the various acts and orders relating to those operations, that the Council will reinstate or make good the pavements of any streets or other works vested in or being under the control or management of the Council, which the undertakers or any of them may be empowered to break up.

London Building Acts (Amendment) Bill.—The Law and Parliamentary Committee submitted a report on this Bill, in which they described briefly the provisions of the Bill, and added "The law relating to the erection of buildings in London is notoriously in a very complicated state, and is distributed over a number of statutes besides the London Building Acts. If this Bill is passed the word 'chaotic' will very adequately describe the state of affairs which must undoubtedly ensue. Moreover, the relations between the borough councils and the London County Council are anything but satisfactory, and their respective jurisdictions require amendment and definition. Under the circumstances it appears that the time has now arrived for an inquiry to be instituted into the whole matter, with a view to a consolidation and codification of the law, and to the readjustment of the powers and duties exercised by the London County Council and the borough councils respectively. We are, therefore, of opinion that a Royal Commission should be appointed, comprising men of technical and expert knowledge, to consider the whole subject." The Committee, having requested the opinion of the Works Committee on the subject, had received a presentment from them expressing views in substantial agreement with their own. On the recommendation of the Committee it was agreed to lodge a petition against the Bill. It was further reported by the Committee that communications on the matter had been received from the District Surveyors' Association, and the City of London Tradesmen's Club.

The Student's Column.

TYPICAL STRUCTURES IN CONCRETE-STEEL.—VII.

DIPHTHERIA PAVILIONS: L'HÔPITAL DES ENFANTS MALADES, PARIS.

THE new buildings, of which some details are described in this article, were designed by Monsieur Belouet, Architecte de l'Assistance Publique, and the reinforced construction was executed in accordance with the Cottancin system.

Isolation Pavilions.—One diphtheria pavilion was already provided at the institution, this building being of ordinary construction with walls carried down to a masonry foundation. The floor was of brick with steel joists, and the walls of the wards of brick lined with timber. This pavilion was much criticised by Dr. F. Roux, the medical superintendent, who considered it very desirable to have a floor under which air could circulate freely, because, owing to the imprisonment of effluvia given off from the soil, the hygienic conditions of the building were far from satisfactory. He criticised also the door and window frames, in which microbes collected and multiplied, and the space between the roof covering and the ceiling, which he found in the same undesirable condition as the space below the floor. Consequently, when it became necessary to build two additional pavilions, Dr. Roux suggested the main features of the design which was subsequently prepared by the architect.

Two new pavilions have now been erected identical in size and arrangement, each having an internal area of 13·15 metres by 5·60 metres, as shown in Fig. 42, which is a typical ground plan. They are built upon ten reinforced brick piers, 33 centimetres square by 2 metres high, so that the floor of the pavilion is 2 metres above the ground level (see Figs. 40 and 41). The piers, situated at the four corners of the pavilion and at three intermediate points in each side wall, are founded upon six caissons, or rectangular brick chambers closed at the top and open at the bottom. These caissons, measuring 1 metre square by 0·6 metre deep, are sunk in the low-lying ground, which is very bad on the site of the hospital, consisting of made earth overlying the *débris* of the old quarries of Paris. The support afforded by the caissons was so satisfactory that no deformation of the building took place, the whole structure resting as a great beam upon the ten piers. The slab forming the top of each caisson is of concrete-steel, and situated 10 centimetres below the normal ground level. To prevent the caissons from being laid bare by rain, sills of reinforced brick were formed round the piers built upon the reinforced concrete slabs. Upon the ten piers was secured the framework of the floor, which consisted of a concrete-steel slab, with beams of concrete-steel 15 centimetres deep by 5 centimetres wide, having metal furring for the plaster ceiling, which forms an enclosed air space under the floor slab (see Figs. 40 and 41).

Along each outer edge of the floor two tiers of brickwork 6 centimetres thick were built 7 centimetres apart, forming hollow outer walls, the interior air spaces being in communication with the air space of the floor. A duct in reinforced brick (Fig. 40) was formed below the floor for the conveyance of warmed air from a calorifier. This warmed air first diffuses itself in the air space of the floor and then ascends by way of the hollow walls to the roof, which is formed of four hollow arches of concrete-steel, as shown in Fig. 41. Suitable outlets are provided in the roof for the discharge of the air. Thus, it will be seen that the pavilions are constructed with a double casing represented by floors, walls, and roof, respectively, and that, between the inner and outer surfaces, warm air circulates, which cannot enter any of the wards, and, consequently, cannot vitiate the air. Further, as the supporting piers are not connected by walls, there can be no collection of unwholesome emanations from the soil.

The whole of the building is so reinforced in all details, and so tied together by steel, that it really constitutes a great tubular beam, 13·55 metres long by 5·98 metres wide by 4·59 metres high, formed by the floor, the two side walls, and the roof covering. This being so, it was unnecessary to employ lintels for the windows and doors, as the openings could be formed much as they might be in a surface of steel plate.

The interior fittings are fixed by bolts to the construction of reinforced brick, so that, if any part of the woodwork becomes infected, it can be detached readily and burnt. The isolating partitions shown in Figs. 40 and 42 are of armed brick for a height of about 1·50 metres above the floor, and above that level they consist of glazed partitions. This arrangement applies also to the corridor, thus the attendants are able to supervise the five beds in each pavilion as if no isolation existed between the wards.

The interior doors are in enamelled iron covered inside with plaster appropriately coloured by antiseptic paint, and a plain fanlight is provided over each door.

The interior wall surfaces are rendered in cement and covered with glazed tiles. The grooved tiles often employed in the angle between the wall and the floor are replaced by a flat tile set at an angle of 45 deg. Taking the case of a tile with a concave surface, as in Fig. 43, the water used for washing the walls loses velocity between *a* and *b*, and lodges at *b*, while with a flat tile at 45 deg. (Fig. 44) water trickling down the wall arrives at *c*, and is carried away by the washing of the floor.

The method of glazing originally adopted being considered unsatisfactory, for the reason that angular corners existed encouraging the collection of dust and organisms, the architect had some frames made in iron with rounded corners, as in Fig. 47. These frames were so constructed on the inside that the glass could be easily removed in case of need.

For the purpose of obviating the inconvenient features of this arrangement, M. Cottancin proposed the method of construction, of which characteristic details are represented in Figs. 45 and 46. All the parts here illustrated are of moulded glass, connected by means of steel rods, and the complete frames are held in position by means of horizontal bars of suitable section. The block illustrated in Fig. 45 is one forming part of a vertical bar. Through the holes *b b*, steel rods of 4 millimetres diameter are passed, being fixed by cement grout. The rebates and vertical grooves are to provide for fixing the glass on either side of the block as explained below. The blocks forming the top and bottom parts of the frame are illustrated by the two left-hand drawings in Fig. 46. In addition to the vertical holes in these, a groove is moulded in the top surface of the upper block, and a similar groove in the bottom surface of the lower block. The curved rebates in these blocks are made with grooves (not shown in the drawing) to provide for fixing curved segments (as B, in the lower right-hand corner of Fig. 46), which hold the glass in position. Referring to the two sketches above that of the curved segment, A′ is the right-hand half of the block shown in Fig. 45 and B′ a block having a projecting rib which fits into the groove in A′. Immediately below these sketches is a horizontal section through the vertical bar of a window frame, A′ being the fixed bar, B′ B′ the side fillets, and *ff*, *ff*, strips of antiseptic felt on either side of the sheets of glass. The fillets B′ B′ are fixed by means of putty or cement of any suitable composition. This type of window frame obviates the use of exposed metal, and, the construction being entirely of reinforced glass, can be washed with antiseptics, and complies with all hygienic requirements.

Main Pavilion.—The roof covering of the main building for the treatment of diphtheria at the same hospital presents a very interesting study from the standpoint of construction as well as of hygiene.

In the first place, it may be mentioned that the problem for solution was to cover a room or hall measuring 28 metres long by 12 metres wide by a roof resting upon ordinary brick walls, 22 centimetres thick, without providing any intermediate support within the rectangle of 28 metres by 12 metres = 336 square metres

area. Consequently, it was necessary that the weight of the roof system should be uniformly distributed over the walls.

For a roof designed in the ordinary manner, the employment of wall plates capable of acting as beams would be imperative, for the purpose of distributing the loads transmitted by the roof trusses in such manner as to avoid overstraining the walls at certain points.

The architect proposed that the wall plates should consist of built-up steel girders, placed as shown at A and B in Fig. 48, for carrying the trusses, spaced 4 metres apart, supporting the roof covering and the lantern. The medical staff, however, required the suppression of the members *ab*, *cd*, *ce*, *df*, *fe* (Fig. 48), in order to avoid the collection of microbes in this part of the structure. This demand involved the conversion of the lantern side partitions *ad* and *be* into two beams each 28 metres long. Taking into account the great span and the oblique push of the principals AD and BE at the points *d* and *e*, colossal proportions would have been necessary for the beams *ad* and *be*, the weight of which would have been sufficient to crush the thin walls of the building.

A proposal was then made to construct in steel two tubular beams, CDEH, CDEH (Fig. 49), to carry the lantern and the roof covering. This project was equally impracticable because of the ungainly proportions and heavy cost of the structure.

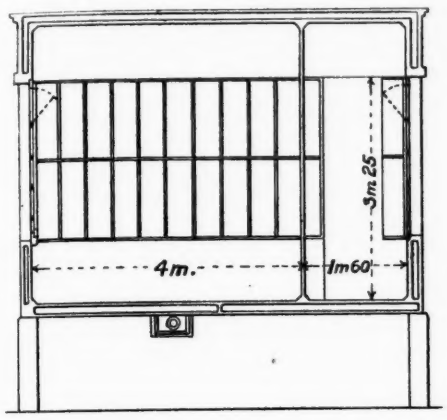


FIG.40. Section A.A.

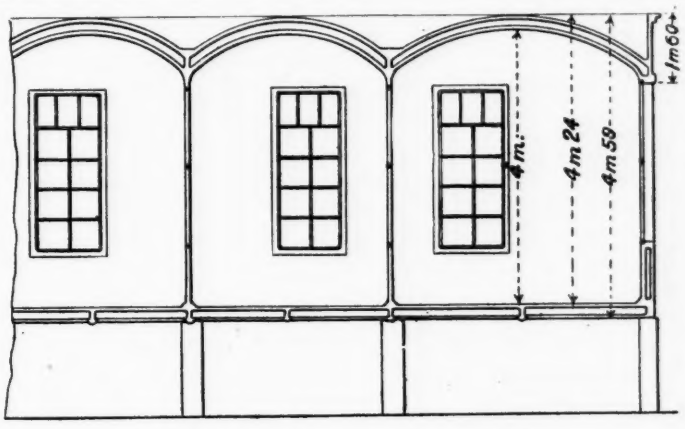


FIG.41. Section B.B.

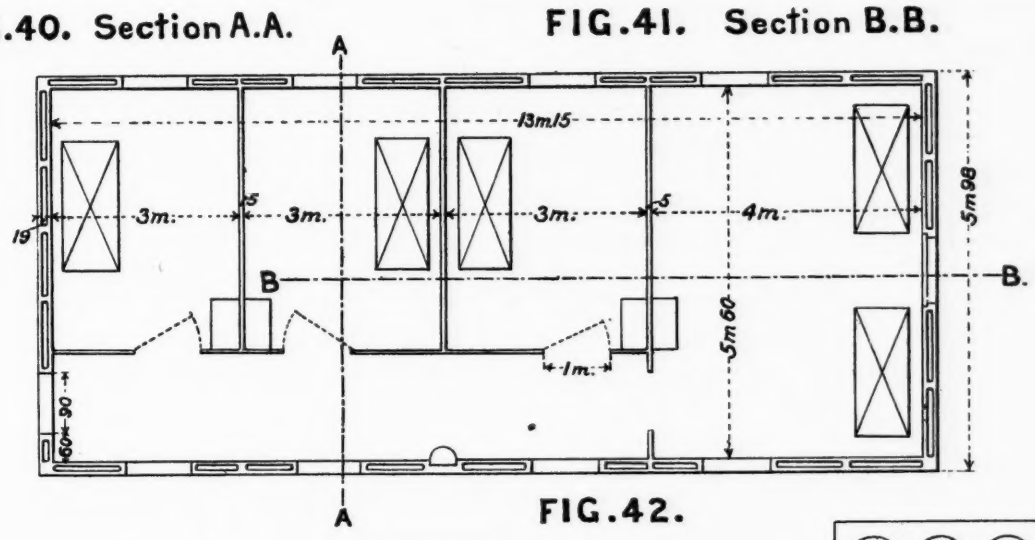


FIG.42.

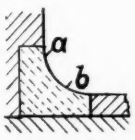


FIG.43.

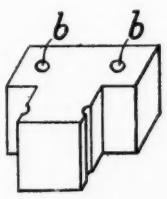


FIG.45.

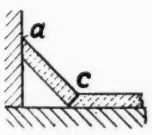


FIG.44.

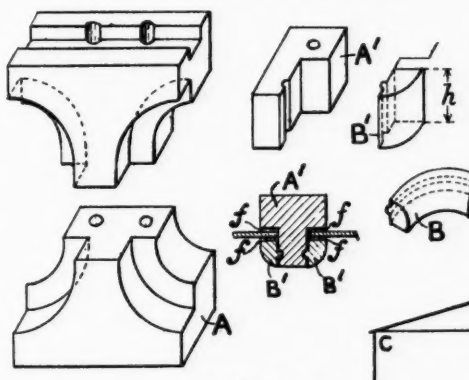


FIG.46.

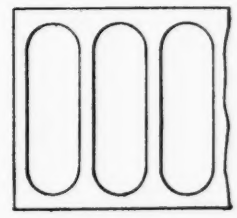


FIG.47.

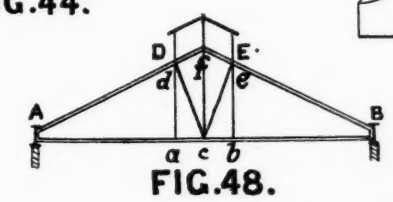


FIG.48.

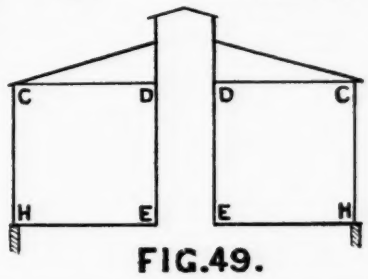


FIG.49.

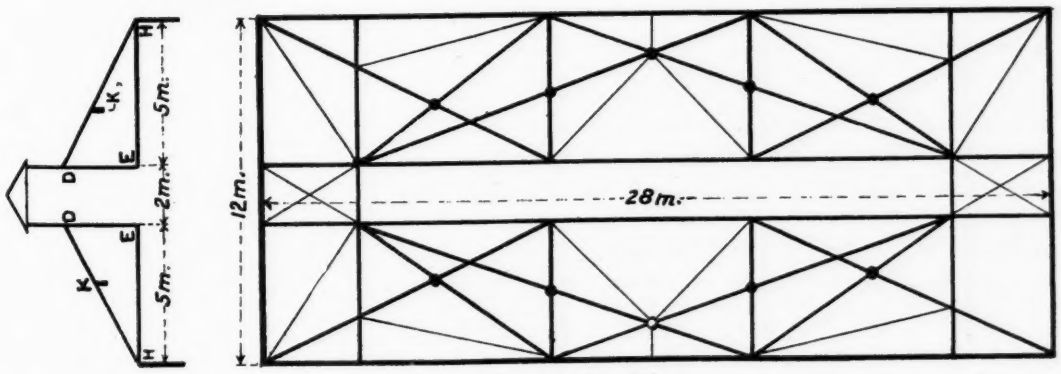


FIG.50.

Illustrations to Student's Column.

The elegant solution proposed by M. Cottancin and accepted by the authorities was to make two tubular beams in concrete-steel of triangular form, as shown by the section in Fig. 50, placing above them a simple lantern. The sides ED, ED are in reinforced brick 7 centimetres thick, the horizontal members HE, HE in reinforced concrete 5 centimetres thick, with stiffening ribs 20 centimetres deep by 5 centimetres wide, following the triangulation in the plan (Fig. 50), and the inclined members HD, HD consist of a simple triangulation of reinforced concrete ribs, 20 centimetres deep by 5 centimetres wide, in the vertical plane of the triangulation of the members of the surfaces HE, HE. At the black points in Fig. 50 vertical members of concrete-steel reunite the systems of HE, HE to those of HD, HD. Below each triangulation of HD a vertical member K, parallel to DE, is provided, having timber furring, to which the rafters are nailed in the ordinary manner. The cement-faced roof slabs were covered with tiles at the request of the administration for the sake of appearance. This roof system is such as to comply with the hygienic requirements of the medical staff, and, virtually constituting a single monolithic beam with an opening in the middle, is a striking example of the adaptability of concrete-steel to building construction, as well as a testimony to the ingenuity of its designer.

Erratum.—On page 152, column 3, lines 27 and 28, the values 36,000 lb. and 52,000 lb. represent working stresses per sq. ft., not ultimate strength per sq. in.; the correct ultimate compressive strength per sq. in. being 1,500 lb. for cinder concrete and 2,166 lb. for stone concrete.

BUILDING ACTS AMENDMENT BILL.

A MEETING of the Incorporated Association for the Protection of Property Owners was held on Wednesday, last week, at the London Institution, Finsbury-circus, when a paper was read by Mr. E. V. Huxtable on the London County Council's Building Acts Amendment Bill. Mr. Huxtable observed that a general feeling existed that the County Council had been extremely ill-advised in the method that they had thought fit to adopt in the introduction of the Bill. If he were asked to explain the object of the Bill he should reply that it was an attempt to improve London at the expense of the owners and occupiers. He afterwards analysed the divisions of the Bill, and produced a number of large diagrams showing how the Bill would affect property owners and occupiers should it become law. He suggested the advisability of a Royal Commission being appointed to consider if any amendments to the Act of 1894 were required. There appeared to be a consensus of opinion that the Bill, as at present drafted, should be withdrawn, and he had no doubt that this result would be attained if the citizens of London realised the arbitrary and inequitable nature of many of its important provisions, and if they organised immediate and concerted action to that end. A resolution was passed expressing a strong opinion that the Bill should be opposed at every stage in Parliament, and requesting those present to write to the Parliamentary representatives of the constituencies in which they resided asking them to do all in their power to prevent the measure being passed.——Sir J. H. Puleston, chairman of the executive committee, presided on the 9th inst. at the annual meeting of the City of London Conservative Association, held at 2, Gresham-buildings. Mr. Delissa Joseph moved that:—"This general meeting of the City of London Conservative Association views with concern the new London Building Bill about to be presented to Parliament by the London County Council, and regarding it as involving serious interference with the rights of property, and as tending to the restraint of trade and enterprise in the City of London, respectfully calls upon the City's representatives in Parliament to strenuously oppose its passing into law in its present form." He said that the Corporation had appointed a committee to watch the Bill, and the Aldermen had been instructed to call wardmotes to consider its provisions. The Lord Mayor, too, would probably be asked to call a meeting at the Guildhall to consider this very undesirable measure. The character of it was such that they felt bound to protest against it, and so strengthen the hands of their members when the Bill came before Parliament. The peculiar conditions of the City of London had been lost sight of by the promoters of the Bill, and the rights of property had been disregarded. Some of the clauses simply meant confiscation without compensation. Existing business would be seriously interfered with were the Bill to become law. Mr. W. H. Fox seconded the resolution.—Mr. H. W. Russell moved as an amendment to delete the last four words of the resolution, viz., "in its present form," remarking that they did not want the Bill at all. Mr. F. Brinsley Harper seconded the amendment.—Mr. Deputy Millar Wilkinson denounced the Bill as a ruinous and dangerous measure.—Mr. S. Sankey said the Bill was utterly impracticable.—The Hon. Alban Gibbs, M.P., said the Bill would meet with uncompromising opposition in the House of Commons. He had no doubt that the good sense of the House of Commons would prevail, and that there would be very little chance of the Bill passing. There were about eighty clauses in it, each of which referred to another clause of another Bill. It looked as though the Bill were drafted with a view to prevent anybody understanding what the law on the matter was. Mr. Joseph accepted the amendment.—Mr. R. Davies, while hoping the Bill would be opposed by all the citizens, said the matter was not one of party politics, and should not be dealt with by a political organisation like theirs. The Chairman did not think there was anything at all wrong in bringing it forward. The resolution, as amended, was then adopted.——At the meeting of the Council of the London Chamber of Commerce, Mr. Albert Spicer presiding, a special committee presented a report on the London Building Act Amendment Bill, with a recommendation that the observations and objections contained therein should be forwarded to the London County Council in response to the request of the latter body, and also that the Chamber should lodge a petition against the Bill, with the object of securing a *locus standi* to oppose objectionable provisions and secure amendments in committee of the House of Commons. The report of the committee dealt with the principal clauses of the Bill, with special reference to business premises of all kinds, it being pointed out that the interests of owners, occupiers, and others would be most prejudicially affected, especially owing to the absence of sufficient provision for arbitration or other form of appeal against the drastic requirements of the County Council. Objections were taken not only to the fire protection clauses, but also to the nature of the proposed amendments of the building law of the Metropolis. The committee direct the attention of the County Council to certain clauses which, in their opinion, required deletion or amendment if the measure was not to prove a source of material restriction of trade throughout the County of London. In addition to this restriction owners and occupiers of business premises in the administrative county would, it was pointed out, be placed at a serious disadvantage as compared with owners and occupiers in the provinces. On consideration of the recommendations of the special committee, several members of the Council of the Chamber expressed strong objections to the Bill, and the recommendations were confirmed, the presentation of the petition being authorised. The Council also received a report by the same committee on the City of London (Means of Escape from Fire) Bill, promoted by the Corporation of London, and approved arrangements for a general meeting of the Chamber to consider the County Council Bill, which will be held at the Chamber on the 16th inst. at 3 p.m.——The Association of Municipal and County Engineers have sent to the members of Parliament for metropolitan divisions and to all the metropolitan borough councils a copy of the following resolution, passed at a Council meeting of the Association held on February 11:—"That the London Building Acts Amendment Bill, 1905, apart from its drastic character and its interference with the powers and duties of the metropolitan borough councils, tends to further confuse and increase the working difficulties of the present laws relating to streets and buildings in the Metropolis, and in the opinion of this Association the Bill should be withdrawn and a new measure introduced, consolidating into one Bill all the statutory provisions necessary for governing the formation of streets and buildings, simplifying the present laws, and relegating to the borough councils all duties which in the opinion of Parliament can be properly entrusted to them, and thus relieve the London County Council of some portion of the enormous burden of work cast upon them."

The following, among a large number of other bodies, are petitioning against the Bill:—Institute of Civil Engineers, Institute of British Architects, District Surveyors' Association, Auctioneers' Institute, Surveyors' Institution, Builders' Institute, Institution of Electrical Engineers. There are eight petitions against the Bill which is being promoted by the Corporation.

OBITUARY.

MR. JAMES THOMSON.—Mr. James Thomson, F.R.I.B.A., and I.A., of Messrs. John Baird & James Thomson, architects, Glasgow, has died suddenly from heart failure. Mr. Thomson was born in Glasgow in 1835, and was trained as an architect in the office of the late Mr. John Baird, who assumed him as a partner in the year 1858. Many important buildings throughout Scotland were erected from his designs. Chief among these were Belmont Castle, Perthshire, the seat of Sir Henry Campbell-Bannerman; Birkwood House, Lesmahagow; Kinnaird House, Stirlingshire; and Gartshore House, the seat of Mr. Alex. Whitelaw. He was twice President of the Glasgow Institute of Architects, and also acted in a similar capacity in the architectural section of the Philosophical Society.—*Birmingham Post.*

MR. TYRRELL.—Mr. George Tyrrell, a well-known contractor for public works under the Government, died at Yarmouth on February 10, aged 84 years. He built the forts at Bembridge, Isle of Wight, the forts between Plympton and Plymouth, and the military works at Hurst Castle, and reconstructed the Royal Naval Hospital at Yarmouth; he restored the Haisborough lighthouse, and constructed those at Calder and Tenby. Mr. Tyrrell built a great number of houses for various estate owners in Yarmouth, where he passed the closing years of his life in retirement.

GENERAL BUILDING NEWS.

CHURCH, BASFORD.—The new church of St. Aidan's, Basford, of which only the nave and aisles have as yet been built, is situated in Arnold-road. Accommodation for 500 people has been made, and the expenditure has been about 5,000*l.* The architects are Messrs. R. Evans & Son. When completed the church will have a length of 80 ft. and a breadth of 24 ft., the material being Bulwell stone, faced with Coxbench stone.

CHURCH, NEWCASTLE-ON-TYNE.—Commemoration-stones were laid on the 8th inst. at the new Church of Scotland, Sandyford-road, Newcastle. The sections of the church and hall now being built, capable of seating 250 persons each, are expected to be finished by April. The site was purchased for about 1,000*l.* The contractor is Mr. W. T. Weir and the architect Mr. F. M. Dryden.

HOLY TRINITY CHURCH, DERBY.—The work in connexion with the rebuilding of this church is now nearing completion. The exterior is practically finished, the decoration of the interior is almost so, and there remain yet to be completed the furnishing and the paving. The architect of the building is Mr. Hewitt, Brighton.

MISSION CHURCH, MERRYMEET, CORNWALL.—The new mission Church of St. Mary the Virgin, at Merrymeet, Menheniot, was dedicated recently. The new building has been erected from plans drawn by Mr. J. Sansom, of Liskeard, and the contractors are Mr. H. Davy, Pengover Green, for the masonry, and Messrs. Runnalls & Sons, Liskeard, for the carpentry. The building is 55 ft. long by 18 ft. 6 in. wide, and 20 ft. high to the apex of the waggon roof. By the introduction of fixed seats of pitch-pine, accommodation will now be found for 100 persons. The main entrance is at the south-west end through a porch, but the choir and clergy obtain ingress at the north-east corner of the church, where a small vestry and offices have been built.

CONGREGATIONAL SUNDAY SCHOOLS, BRIGHTSIDE, SHEFFIELD.—This building has been erected at the rear of the existing church. There is a large schoolroom with end gallery; also infants' room, young men's and young women's rooms, and eight other classrooms, which may all be thrown into the schoolroom by means of glazed sliding screens. There is a room which will be used as a scholars' library. The accommodation is for 620 persons seated, and the total cost, including furniture, will be about 2,000*l.* The general contractors are Messrs. Henry Boot & Son; the warming engineers are Messrs. Wright Brothers; the roads and paths have been made by Messrs. Hadfield & Sons; and the architects are Messrs. C. J. Innocent & Son, all of Sheffield.

SCHOOL, GOVANHILL, NEAR GLASGOW.—Victoria Public School, Govanhill, was opened on the 10th inst. The site on which it is built consists of 5,825 sq. yds., and it gives accommodation for 1,286 pupils, and besides the usual classrooms there are a cookery-room and a workshop. The estimated cost of the building is about 20,000*l.* The architect was Mr. Andrew Balfour, I.A., and the measurers were Messrs. Dansken & Purdie. The work was carried out under the supervision of Mr. Preston, the Board's master of works.

BUILDING IN BLACKPOOL.—The building trade in Blackpool during the past year has been very slack. The annual report of the Borough Surveyor states that it was the lowest for the last fourteen years, with the exception of 1892. The year of Blackpool's boom was 1898, but since then there has been a gradual decline, the number of houses certified for habitation having dropped from 1,066 in that year to 292 in 1904. Lock-up shops also show a considerable decrease, only twenty-three plans having been approved last year as compared with sixty-two in 1903.

PROPOSED COTTAGES, COOKSTOWN, NEAR BELFAST.—On the 7th inst., an inquiry was held by Mr. Robert Agnew, Local Government Board Inspector, in the Courthouse, Cookstown, into a scheme for the building of thirty-eight cottages under the Labourers Acts. Mr. H. Alfred Mann, J.P., clerk to the council, gave evidence, and said that the estimated cost of the scheme was 8,909*l*. Mr. Henry Shillington, C.E., architect of the scheme, was also examined.

NEW WING, ABERDEEN MATERNITY HOSPITAL.—The new wing of the Maternity Hospital in Castle-terrace, Aberdeen, was opened on the 9th inst. The new building consists of a basement and ground floor, and a ward is provided capable of containing a dozen patients. Accommodation has been made for the nursing staff, bathrooms, pantries, and larders, and the maternity-room has been fitted up with all the latest appliances. Mr. John Rust was the architect, and the contractors were:—Mason, Mr. Robert Smith; carpenters, Messrs. Alexander Innes & Son; plumber, Mr. David Ogilvie; plasterers, Messrs. James Bannochie & Son; slater, Mr. George Davidson; painter, Mr. William L. Leslie; electric light, Mr. John F. Anderson; bells, Messrs. Shirras, Laing, & Co.

LIBRARY, WAKEFIELD.—A memorial to the late Queen Victoria has just been unveiled at Wakefield, and the foundation-stone of a free library laid. The memorial to the late Queen takes the form of a bronze statue of Her Majesty, which has been erected in the public square known as "The Bull Ring." It has cost 1,000*l*. Mr. Williamson, of Esher, Surrey, has carried out the work. The free library will comprise lending and reference libraries, separate reading-rooms for women and children and men, and a magazine-room, with quarters for the librarian and caretaker. The brick walls are faced with dressed Huddersfield stone, and the roofs are to be boarded, felted, and covered with Westmorland green slates. The principal contractors are Messrs. Bagnall Brothers and Messrs. Bramald & Broadhead, two local firms, and they are carrying out the instructions of Messrs. Cox, Trimnell, & Davison, architects, of London.

FOREIGN.

FRANCE.—The committee appointed to consider the project for a tunnel under the Seine for the passage of the Metropolitan Railway from the Porte de Clignancourt, has adopted the scheme of M. Chagnaud, which is estimated to cost 15 million francs and will require eighteen months to carry out.——At the Cluny Museum the rooms devoted to the collections left by MM. Arthur and Adolphe Rothschild have just been opened. The exhibition of "Femmes Peintres et Sculpteurs" has also just opened; it shows more of ambition than of attainment.——At the Luxembourg Museum M. Bénédite, the curator, has organised an exhibition of drawings by M. Rodin, the sculptor, which form a somewhat grotesque collection of annotations. ——M. Georges D'Esparbès has been appointed curator of Malmaison and of the Imperial Museum there, which is not yet open to the public. The furnishing of the museum is being gradually carried out by the collection from all quarters of furniture and other articles of value formerly belonging to the Empress Josephine.——A committee has been formed to erect a monument to Gérôme in the Jardin de l'Infante at the Louvre. It is to be carried out by the painter's son-in-law, M. Morot.——A monument to Taine, at Vouziers, will be inaugurated in June.——M. Bœswillwald has been elected President for 1905 of the Society of Architects of Havre; and M. Bulot President of the Society of Architects of Seine-et-Marne.——The "Vieux Paris" Committee has decided that the next exhibition of topographical illustration of Paris is to deal with the quarter of the Marais, and the streets, quays, and interiors of the Ile Saint Louis.——The Société Nationale des Architectes has chosen as the subject for its next annual competition, "Un Hôtel pour un Journal."——A permanent exhibition of the best products of the manufactory at Sèvres is to be organised at the Petit Palais.——The fine picture by M. Lhermitte representing "The morning arrival at the Halles," at present in a small room at the Paris Hôtel de Ville where the public cannot see it, is to be transferred to the large gallery of paintings at the Palais des Beaux Arts.

CONCRETE-STEEL FLOORS AT THE GENERAL POST OFFICE, ORAN.—A recent example of concrete-steel flooring is to be found in the new General Post Office of Oran, Algeria, a building which has been constructed in accordance with the designs of M. Edouard Arnaud, Paris. All the floors were built on the Coignet system, in which tensile stress is resisted by reinforcement, consisting of round bars and compressive stress by the concrete. In floor beams and joists, ¼-in. diameter vertical tiles are provided for resisting sheer. The floor slabs are reinforced on the tension side by horizontal bars bent or near the ends, and also by transverse bars of smaller diameter. In the offices where the loading was heavy the floor slabs were provided with horizontal reinforcement bars in the compression area, as well as in the tension area, and the two series of bars were connected by vertical tiles for resisting sheering stresses, and to bind the whole construction together. In certain cases the floor slabs were strengthened by the formation of ribs projecting from the under side, these ribs constituting floor joists.

MISCELLANEOUS.

SIR WILLIAM GRANTHAM AND THE CHAILEY RURAL DISTRICT COUNCIL.—The *Local Government Chronicle* states that it is authorised to deny the statement made by Sir W. Grantham at the meeting of the Surveyors' Institution on Monday last that the Chailey Rural District Council had tried to force on him the urban by-laws. The Chailey by-laws are word for word the same as the Rural model of the Local Government Board, and all that the Council required Sir William to do was to deposit intelligible plans. Instead of doing so, he wrote to them saying "the conduct of your Council is so inexplicable and intolerable that I must definitely break off negotiations with them, and defy them to do their worst." The Council have not sought to impose any restrictions on cottage building, and they have merely required the deposit of plans that would show what was intended to be built. The result of the prosecution was to show that Sir W. Grantham's "home-made plans" did not fulfil the requirements of the by-laws.

SOCIETY OF BRITISH SCULPTORS.—The statutory general meeting of the Society of British Sculptors was held at the galleries of the Royal Society of British Artists on Tuesday night for the purpose of electing the officers and council for the ensuing year. Mr. Thomas Brock, R.A., presided, and congratulated the members on the attainment of a long-desired object. Sculpture in England had of late made rapid strides, and there was no doubt that a society of this kind had now become a necessity and would do much, not only to protect the interests of the sculptors themselves, but to advance the art of sculpture in the knowledge and appreciation of the public. The result of the ballot was declared as follows:—President, Mr. Brock; treasurer, Sir C. Lawes-Wittewronge; secretary, Mr. Percy Edsall; council, Mr. A. Drury, Mr. G. Frampton, Mr. W. S. Frith, Mr. F. Lynn Jenkins, Mr. W. Goscombe John, A.R.A., Sir Charles Lawes-Wittewronge, Mr. T. S. Lee, Mr. D. McGill, Mr. F. W. Pomeroy, Mr. Reynolds-Stephens, Mr. Hamo Thornycroft, and Mr. F. D. Wood.

PHOTOGRAPHIC SURVEY AND RECORD OF SURREY.—The annual meeting of this Association, formed for this purpose, will be held in the Council Chamber, Town Hall, Croydon, at 5.45 p.m., on Saturday, March 11, when the President, Viscount Midleton, will give an address, and the report of the Council and the accounts of the year ended December 31, 1904, will be submitted. The meeting is open, not only to members of, and contributors to the survey, but to all interested in its work and aims. Arrangements have been made for an exhibition, consisting of a representative selection from the 1,300 prints already in the survey collection, in the lecture-room, Town Hall, Croydon. This will be open on the day of meeting, from 7 to 9 p.m., and again on the following Monday, Tuesday, and Wednesday, from 3 to 5 p.m., and 7 to 9 p.m.

DRAINAGE PLANS. — Greenwich Borough Council, at its last meeting, expressed disagreement with the views contained in a circular letter from the Royal Institute of British Architects urging that the London County Council by-laws respecting the deposit of drainage plans should be modified so that they should only require the submission of a block plan, and a written description of the pipes and apparatus. The Council, however, decided to inform the Spring Garden authorities that the by-laws might, with advantage, be amended by clearly defining the meaning of the exemption clause contained at the end of by-law 2, which is, in their opinion, somewhat ambiguous. The clause referred to is as follows:—

"These by-laws shall not be deemed to require the deposit of any plans, sections, or particulars in the case of any repair which does not involve the alteration or the entire reconstruction of any pipe, drain, or other means of communicating with sewers or the traps or apparatus connected therewith."

Marylebone Borough Council concurs in the views of the Royal Institute of British Architects.

EAST-END DWELLINGS COMPANY.—The report submitted to the twenty-second ordinary general meeting of the Company, held on the 15th inst., states that Tonbridge Houses, on the Cromer-street Estate, which contain seventy-eight tenements, were finished and opened late in the autumn, and, as was anticipated, were rapidly taken up, and at the close of the year there was no tenement unlet on the whole of that estate. The letting of the Company's other properties has been satisfactory, with the exception of the buildings in and near Victoria Park-square and Globe-road, Bethnal Green. The reduced scale of rents which were adopted towards the end of 1903 in respect of these buildings had a good effect for a time, but in the summer and autumn the letting again fell off. The directors have decided to further reduce the rents in the hope of securing sufficient tenants to fill the buildings. The new buildings in Old Ford-road, Bethnal Green, which have been named "Evesham Houses," are expected to be ready for occupation early in the new year. They will comprise 120 rooms, divided into ten tenements of four rooms, ten of three rooms, and ten of two rooms, each with scullery and water-closet. These buildings differ from most of the Company's other dwellings in the same neighbourhood, inasmuch as each tenement is self-contained, and it is hoped that they will readily let.

MURAL TABLET, HEXHAM.—It has been decided to erect a mural tablet in the Abbey Church in memory of the late Capt. L. W. Atkinson. The tablet, which has been designed by Mr. C. E. Hodges, will be of alabaster and white marble, measuring about 8 ft. by 5 ft. The execution of the work will be entrusted to Mr. Milburn, sculptor, York.

PRESS-BUTTON ELECTRIC LIFTS.—We have recently had an opportunity of inspecting a press-button electric lift made by Messrs. Joseph Richmond & Co., of Hatton-garden, E.C., which seems to us to be deserving of special mention, as many of the objections to this type of lift have been overcome. A study of the complete specification for this type of lift granted to Messrs. Richmond & Carey has convinced us that their design is theoretically sound, and, considering the very complex operations which have to ensue when the button on any floor is pressed, their solution is, comparatively speaking, a simple one. When the button on any landing is pressed all the buttons on the other floors are locked instantaneously, and the lift, whether it be above or below the landing, at once moves there and automatically unlocks the door. The mere action of opening the door breaks the electric circuit, so that it is impossible for the lift to move with the door open. On entering the cage the weight of the passenger on the cage floor closes a switch, which keeps the buttons on the landing locked, and thus the lift cannot be interfered with from the outside when in action. There are press-buttons inside the lift; the passenger presses the one for the floor which he wants, and the cage at once moves there and stops. In the unlikely event of two persons pressing buttons on different floors at exactly the same instant the car will travel to the floor farthest from that at which the cage was at rest. The method by which all this is done is fully explained in the specification, and it is most instructive to the electrician to trace out all the connexions. There are many distinctly novel features in the arrangements which will be appreciated by electricians. Several of these lifts have now been working satisfactorily for some months.

WAR MEMORIAL, SALISBURY.—The memorial which has been placed in Salisbury Cathedral in memory of the officers, non-commissioned officers, and men of Wiltshire who lost their lives in the South African war was unveiled on the 4th inst. The memorial was designed by Mr. Alexander Fisher, Kensington, and consists of a panel in copper, on which is mounted an inscription with the names in enamel on silver-gilt. Above is a circular bronze relief of two figures representing Death raising the fallen.

OAK SCREENS, BENHILTON CHURCH, SUTTON.—Three new oak screens were unveiled in this church a short time ago. They were executed

by Messrs. Harry Hems & Sons, of Exeter, from designs by Messrs. W. Hilton Nash & Lionel S. Detmar, architects, of London.

ROYAL SCOTTISH ACADEMY.—At the general assembly of the Royal Scottish Academy, held in Edinburgh on February 8, the following Associates were elected Academicians:—Mr. J. Kinross (architect), Mr. W. Birnie Rhind (sculptor), and Mr. E. A. Walton (painter), all of Edinburgh. Mr. Kinross is the architect of a large mansion now being built for Sir James Miller, of Manderston; Mr. Birnie Rhind is the sculptor of the memorial to the 2nd Dragoons (Scots Greys) to be erected in Princes-street, and is commissioned to execute a bronze statue, 9 ft. high, of Colonel Light, who founded the City of Adelaide, South Australia, in 1836; Mr. Walton, who studied in Düsseldorf and London, is well represented in several picture galleries on the Continent of Europe. Sir James Guthrie, President R.S.A., has just been elected, under the provisions of Rule II. of the club, a member of the Athenæum Club, London.

MATERIAL FOR CEMENT IN CEYLON.—Professor Wyndham R. Dunstan, F.R.S., Director of the Imperial Institute, in a first report on the mineral survey now in progress in Ceylon, mentions that among the deposits analysed were one of secondary limestone or travertine and one of ricefield mud, both from the district of Hangiliella Oya. They both proved to contain all the elements requisite for the preparation of Portland cement of good quality, and it is proposed to use them in conjunction for that purpose.

Legal.

TRADE UNION DISPUTE:
ACTION BY A STONEMASON.

IN the Court of Appeal, consisting of the Master of the Rolls and Lords Justices Mathew and Cozens-Hardy, on the 10th inst., the hearing was concluded of the case of Airey *v.* Weighill and others, on the application of the four defendants, Weighill, Thomson, Stagg, and Elliott, for judgment or new trial on appeal from verdict and judgment at the trial before Mr. Justice Grantham and a special jury at Newcastle-on-Tyne.

The action was brought by the plaintiff, a stonemason, against the defendants, Weighill, Thomson, and Stagg, the trustees of the Friendly Society of Operative Stonemasons, Rawson and Elliott, the president and secretary of the Sunderland district branch of the Society, and Armitage, McConnell, and Shann, members of the Sunderland branch of the Society, for damages for having unlawfully and maliciously procured and induced the plaintiff's employer to put an end to the plaintiff's employment. The plaintiff also claimed an injunction to restrain the Society from interfering with any persons with a view to causing them to break their contracts with the plaintiff, or to cease to employ him, or to abstain from entering into contracts with him, and from otherwise molesting or interfering in any manner with the plaintiff in following his calling. The facts were these:—The plaintiff was formerly a member of the Friendly Society of Operative Stonemasons, but on becoming a foreman he ceased to be a member of that Society, and became a member of the foremen's union. Owing to depression in trade plaintiff, on March 15, 1904, went as a stonemason into the employment of a Mr. Shaftoe, a building contractor in Sunderland. On that day, the defendant, Armitage, who was what was called the "shop steward," asked plaintiff if he was prepared to join the Society, and the plaintiff replied in the negative. On March 21 a meeting of the district branch was held, but there was a dispute as to what took place at that meeting. On March 22 the plaintiff was asked again whether he would become a member of the union, and again refused. The other workmen in Mr. Shaftoe's employment, all of whom were members of the Society, then, as plaintiff alleged, in accordance with instructions given by Armitage and other defendants, agreed to determine their employment by giving an hour's notice, and proceeded to do so. Mr. Shaftoe asked the reason of this, and the reply was that plaintiff was not a member of the union, and refused to join it. The result was that plaintiff received an hour's pay and his employment was terminated. The plaintiff had been in receipt of wages at the rate of 8*l.* a month, and he remained out of employment for a month. The four appellants were the only defendants who entered an appearance to the writ, the other defendants making default. At the trial Elliott stated that, at the meeting of March 21, the lodge passed a resolution forbidding the men to bring about the plaintiff's discharge, but no minutes of the meeting were produced. The jury found that Rawson, Armitage, Shann, and McConnell ordered the men to send in their notices to Mr. Shaftoe to compel him to get rid of the plaintiff; that they acted as they did act to force the plaintiff to join the Society, and to get him dismissed from his work if he did not join; that they acted as they did with the approval of the lodge; but that they did not act with a malicious intent to injure the plaintiff apart from forcing him to join the Society. The jury assessed the damages at 8*l.*, and judgment for that amount was entered for the plaintiff. Hence the present application.

Mr. Atherley-Jones, K.C., and Mr. Edward Shortt appeared for the appellants, and Mr. Eldon Bankes, K.C., Mr. Gawan Taylor, and Mr. A. Robinson for the respondent on the appeal.

Mr. Atherley-Jones contended that no actionable wrong had been committed by any of the defendants, and secondly, that, if any wrongful acts had been committed, the persons who did the wrongful acts were not acting as agents of the defendant Society. Here the object of the defendants was to maintain the existence and the successful working of their union. That was a perfectly lawful object. In the second place, the learned counsel submitted there was no evidence of any authority from the defendant Society for the acts done by individual defendants. The action of the men was spontaneous, and was not prompted, induced, or suggested either by the lodge or by the parent Society. The evidence of Elliott showed that the men acted in defiance of a resolution of the lodge.

Mr. Bankes submitted, on behalf of the respondent, that on the first two findings of the jury there was clearly a cause of action against somebody. The conduct of all persons concerned and the order of events showed that, whether or not the lodge passed such a resolution as Elliott spoke of, the men obtained the sanction of the lodge for what they did. He contended that the jury were justified in coming to the conclusion that the lodge did not prohibit the men from acting as they did, and that, in fact, the men acted with the approval of the lodge. No distinction could be drawn so far as liability was concerned between the lodge and the Society, and the Society was responsible for the acts of its local agents and managers.

At the conclusion of the arguments the Master of the Rolls, in giving judgment, said the first point was the general question whether any cause of action had been established against anyone. That question opened a very wide field for investigation. The other point was the question whether, supposing any wrongful acts giving rise to a cause of action had been committed by anyone, the trade union itself could be held responsible for them. On this latter point alone he proposed to give judgment. He would not deal with the question, whether, on the facts, any cause of action whatever accrued to the plaintiff. But the question he would deal with was whether there was any evidence fit for the consideration of the jury of responsibility on the part of the trade union itself for the acts of Rawson and Armitage. They were officers of the lodge, but before the plaintiff could succeed he must fix the trade union itself with responsibility for their acts. Unless their acts were such as to make the union responsible for them the plaintiff must fail. In his opinion, the onus of proving that the union was responsible for the acts of individuals was on the plaintiff. Approval might cover ratification, but there was no evidence of any ratification in this case, and that point was not argued. In order to support the conclusion the jury had arrived at, it was necessary for the jury to have found that there was a resolution of the lodge authorising the strike. He thought there was no evidence to justify the finding of the jury on that question. There was no trace of assent on the part of the union to what was done. For these reasons he thought that the application must be allowed, and judgment entered for the defendants.

The Lords Justices concurred.

DISPUTE AS TO PAVING EXPENSES.

THE case of the Mayor, etc., of Hampstead *v.* The Midland Railway Company came before the Court of Appeal, consisting of Lords Justices Vaughan Williams, Romer, and Stirling, on the 13th inst., on the appeal of the Railway Company from the judgment of Mr. Justice Bigham on a special case stated for the opinion of the Court on a question of law arising in the action. (The case in the Court below was reported in the *Builder* of August 13, 1904.)

The action was brought by the plaintiffs to recover from the defendant Company 1,200*l.* 12s., the apportioned amount they alleged to be due from the Company as the estimated expenses of paving a portion of a new street called Westbere-road, Hampstead. The facts were shortly these:—The plaintiffs, on June 4, 1903, resolved to pave Westbere-road, and on September 25 served the defendants with notice demanding from them the sum alleged to be due from defendants as the owners of land "bounding or abutting" on the new street. Defendants contended that they were not the owners of the land in question within the meaning of the Metropolis Management Acts, 1855 and 1862, and therefore not liable for the expenses in question. It appeared from the special case that the defendants acquired the land, and held it subject to the provisions of section 18 of the Midland Railway Act, 1900, and which provided for the protection of the owner that the Company should not use any part of the sidings to be placed on the land acquired from him for any purpose except for the purpose of empty passenger trains; that the Company should acquire all the land of the owner up to Westbere-road, and should leave a strip of land 20 ft. wide along the whole length of Westbere-road, and should, at their own expense, plant and maintain the same with shrubs and trees to the reasonable satisfaction of the owner, and also fence off the land from the Westbere-road by an iron fence, 7 ft. high, the planting and fencing to be carried out within one year from the Company getting possession of such lands. The Company duly acquired the land referred to, and left a strip of land, 20 ft. wide, along and contiguous to the whole length of the west side of Westbere-road, and dealt with it in the manner provided by the section. They fenced off the land from the Westbere-road by an open, unclimbable fence, 7 ft. high, and planted a quick-set hedge immediately inside the fence along its whole length. On the other side of the strip of land the land sloped down to the edge of the railway, a cutting having been made for the purpose of its construction. The plaintiffs contended that the defendants were "the owners" of the land "bounding and abutting" on the new street within the meaning of the Metropolis Management Act, and were therefore liable for the amount claimed. The defendants, on the other hand, contended that the land was not land bounding or abutting on the street within the meaning of section 77 of the Metropolis Management Act, 1862; that the land was subject, in perpetuity, to the burden of public and private rights which deprived it of all beneficial value to the defendants, and was not such land as was intended by that section; and that the defendants were not the owners of the land within the meaning of that section, and sections 105 and 250 of the Metropolis Management Act, 1855. Mr. Justice Bigham held that the result of the decisions bearing on the subject was that when land was incapable of yielding rack-rent by reason of some public use on or over such land, the owners of such land were not the owners of land within the meaning of the Metropolis Management Acts, and thus not liable to contribute in respect of such land to the expenses of paving a new street. But where the burden of the land was imposed for the benefit of some individual or set of persons, the owners of such land were not relieved from having to contribute towards those expenses. In the present case the burden was placed on the land in question for the benefit of a Mr. Powell-Cotton by a private Act of Parliament, and it was competent for him, by contract with the defendants, to release them from their obligation towards him in respect of the land. In the other case nothing but an Act of Parliament could release the land of the burden. He thought, therefore, that the defendants' contention failed, and gave judgment for the plaintiffs for the amount claimed, with costs. Hence the present appeal of the Railway Company.

Mr. Montague Lush, K.C., and Mr. Wm. Wills appeared for the appellants, and Mr. Macmorran, K.C., and Mr. Courthorpe Munroe for the respondents.

At the conclusion of the arguments of counsel their lordships affirmed the decision of Mr. Justice Bigham, and dismissed the appeal, with costs.

PATENTS OF THE WEEK.

APPLICATIONS PUBLISHED.*

1,339 of 1904.—N. REID: *Construction of and Method of Firing Kilns for Use in Firing Bricks, Tiles, Pipes, and other Earthenware Goods.*

This consists of revolvable circular and other shaped kilns for use in firing pottery ware mounted on a cast metallic plate having a

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made

metallic shaft secured centrally to its underside at right angles to its upper surface, or nearly so, to enable the lower end of such shaft to rest in or upon a metallic foot-step bearing let into or secured to a brick, concrete, or like suitable bed or foundation, a suitable number of metallic brackets secured to the underside of such metallic plate near to its periphery at an equal or suitable distance apart with metallic rollers or wheels fitted thereto for bearing down and travelling upon a metallic plate, a track, a single-headed, a double-headed, or flanged metallic line of rails secured to wood or metallic sleepers, to a brick or a concrete or like suitable foundation, a stationary or movable fire-box and smoke-box fitted with wheels or rollers to travel upon metallic plates or rails, secured to sleepers, to brickwork, or to the ground adjacent according to the shape of kiln.

3,659 of 1904.—E. H. PARKES: *Roller Blinds and their Fittings.*

A roller blind, consisting of a top roller upon which the blind is wound, a longitudinal undercut groove in said roller, a bottom roller provided with a similar groove, corresponding rods or laths upon each end of the blind adapted to fit into either groove, and means for preventing the rods accidentally working longitudinally out of the grooves.

3,947 of 1904.—J. T. HURLEY: *Operating Bulkhead, and other Doors.*

A valve for operating bulkhead and other doors having valves so arranged that pressure and exhaust will flow in either direction through the valve casing to the cylinder, and which may be operated, but will only reverse the flow through the valve casing when the pressure and exhaust to and from the valve casing are in one of the two directions.

6,187 of 1904.—G. H. ADDENBROOK: *Apparatus for the Prevention of the Condensation of Moisture on Windows or other Surfaces, and for the Preservation of Goods in the Neighbourhood thereof.*

This consists in the combination of calcium chloride or other deliquescent substance with a mechanical fan, applied for the purpose of absorbing the moisture in the atmosphere in shop windows, show cases, and other enclosed or air-tight compartments or receptacles.

6,544 of 1904.—G. H. GOODERSON: *Chimney Ventilating and other Cowls.*

A revolving cowl attached to a spindle extending down into a tube or casing carried by the shaft of the cowl, the said spindle at its lower end running on anti-friction balls, and at its upper end being provided with a passage through which the lubricant can flow into the interior of the tube.

6,544 of 1904.—H. HOPE & SONS, LTD., and F. G. STERNBERG: *Fanlight Windows or the like.*

A fanlight window or the like, provided with hopper cheeks, the flanges or bars supporting which are arranged so that they can be moved relatively with the window to allow the latter to be turned down, and so that the weight of the said bars will normally tend to retain them in their proper position for supporting the window.

6,583 of 1904.—A BARR: *A Portable Platform or Support for Use when Cleaning Windows, and for other Purposes.*

This invention relates to a portable platform or support for use when cleaning windows, and for other purposes. The invention consists of a small platform which is hinged to and supported on a frame which may be of rectangular shape, and this frame has at its upper end lateral screws which can be arranged to screw into or out of a cross tube, which latter may form the top of the frame. The screws have preferably end pieces or blocks on them which are adapted to fit into the pulley stiles of the window sash.

7,371 of 1904.—H. E. CATER and H. P. BELL: *Facing Tiles or Slabs for Walls, Ceilings, and the like.*

A backing material for glass sheets destined for use as facing tiles, said material comprising a powdered mineral matter, such as whiting, a varnish gum, and a non-drying oil, with or without added materials, such as colouring matter.

7,457 of 1904.—W. HERBST: *Ceilings.*

A ceiling, consisting in the combination of a bearing member of concrete, arranged on edge, reinforced with an iron insertion, and made in one piece before erection, a filling member having round or chamfered upper edges, and formed before erection of light hydraulic moulding material or burnt clay, and of a covering layer binding with these parts, and formed of concrete or other suitable material.

17,807 of 1904.—C. W. GOSS: *Apparatus for Straining, Tightening, and Fastening Wire or Strands in Fences, and the like.*

An apparatus for straining, tightening, and fastening wire or strands in fences and the like, having a bracket secured to a post or upright, and a rotatable winding spindle (with square end), mounted therein, to which the end of the wire is secured, an abutment or slot on the outside face of the bracket adjacent to the square end of the winding spindle, and a key which, when inserted between the square end of spindle and the abutment, locks the winding spindle, or, when removed, releases it.

23,744 of 1904.—T. MILLS: *Fireplaces of Brick-burning Kilns, and the like.*

A fireplace of brick and like kilns, consisting in the employment of air admission holes or passages in the front of the fireplace, at each side of the fuel discharge aperture, communicating with the interior of the combustion chamber.

27,029 of 1904.—S. W. CRAMER: *Humidifiers and Air-Moistening Apparatus.*

A humidifier, consisting of a casing, a shaft, and exposed motor wheel, and a propeller supported on said shaft, a plurality of spray heads provided with means for supplying an elastic fluid under pressure, a liquid supply pipe, and concentric and detachable nozzles, one of which is adjustable for producing an elastic aqueous vapour and directing said vapour against the motor wheel.

25,289 of 1904.—T. PODMORE: *Building Blocks.*

A method of veneering artificial stone which consists in depositing a layer of cement on the face of the block, sprinkling granular material thereon, tamping said granular material, and finally smoothing the surface of the block by rubbing or grinding the exposed granules so as to present a raised rock face in imitation of cross-cut chiselled stone.

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

February 6.—By OGDEN, SONS, & OLLEY.	
Brixton.—2 and 4, Cranmer-rd. (s. and flats), u.t. 76¼ yrs., g.r. 24*l.*, y.r. 236*l.*	£2,100
February 7.—By ADAMS, BEST, & WATTS.	
Clerkenwell.—2 and 3, Upper Baker-st., u.t. 6¾ yrs., g.r. 10*l.*, y.r. 78*l.*	175
5, Upper Chadwell-st., u.t. 7¼ yrs., g.r. 9*l.*, y.r. 50*l.*	110
King's Cross.—7, Tiber-st., u.t. 37 yrs., g.r. 4*l.*, w.r. 33*l.* 16s.	205
Caledonian-road.—48, Muriel-st., u.t. 77½ yrs., g.r. 5*l.* 5s., w.r. 33*l.* 16s.	200
41, Edward-sq, u.t. 36 yrs., g.r. 5*l.*, y.r. 34*l.*	255
Finsbury Park.—24, Palmerston-rd., u.t. 60½ yrs., g.r. 6*l.*, w.r. 41*l.* 12s.	285
By J. M. LEEDER & SON (at Swansea).	
Pantyffynnon, Carmarthen.—The Rhos Colliery, mineral area 1,878 acres, part f. and part u.t. 6 to 32 yrs. (as a going concern, exclusive of valuations)	13,000
February 8.—By FURBERS'.	
Tottenham.—Beaconsfield-rd., f.g. rents 96*l.*, reversion in 71½ yrs. (in lots)	2,395
Clyde-rd., f.g.r. 8*l.* 8s., reversion in 71¼ yrs.	235
Brunswick-rd., f.g.r. 12*l.*, reversion in 71¼ yrs.	300
By KNIGHT & CO.	
Notting Hill.—58 and 59, Stoneleigh-st., u.t. 43 yrs., g.r. 12*l.*, w.r. 78*l.*	510
Dulwich.—113, Crystal Palace-rd., u.t. 60 yrs., g.r. 6*l.* 6s., y.r. 28*l.*	290
111, Crystal Palace-rd., u.t. 60 yrs., g.r. 6*l.* 6s., y.r. 28*l.*	275
Lambeth.—25, Old Paradise-st., u.t. 43 yrs., g.r. 10*l.*, w.r 45*l.* 10s.	195
Walworth.—23, Heygate-st., u.t. 38 yrs., g.r. 4*l.* 12s., y.r. 40*l.*	320
By T. D. PEACEY.	
Regent's Park.—Berkeley-rd., f.g.r. 18*l.*, reversion in 42 yrs.	620
By A. DOWELL (at Edinburgh).	
Fowlis Wester, Perthshire.—The estate of Glenalmond, 11,000 acres	£72,600
February 9.—By E. H. HENRY.	
Peckham.—11 and 13, Hardcastle-st., u.t. 58¼ yrs., g.r. 12*l.*, w.r. 75*l.* 8s.	530
By NEWBON, EDWARDS, & SHEPHARD.	
Barnsbury.—139, Hemingford-rd., u.t. 37½ yrs., g.r. 7*l.*, e.r. 45*l.*	425
Holloway.—45, Hungerford-rd., u.t. 55¾ yrs., g.r. 6*l.*, y.r. 45*l.*	475
By WESTON & SONS.	
Croydon.—161, 163, 173, 175, 177, and 179, Bynes-rd., f., w.r. 110*l.* 10s.	1,080
Thornton Heath.—56 and 58, Frant-rd., and land adjoining, f., w.r. 52*l.* 4s.	370
By C. C. & T. MOORE	
Mile End.—137 and 139, Mile End-rd. (s.), area 5,500 ft., f., y.r 100*l.*	1,700
564, Mile End-rd. (s.), area 3,100 ft., y.r. 100*l.*	1,360
Bow.—40 and 50, Bow-rd., f., y.r. 105*l.*	1,450
52, Bow-rd., u.t. 49 yrs., g.r. 5*l.* 10s., e.r. 60*l.*	480
6, Mornington-rd., f., y.r. 35*l.*	500
11, Mornington-rd., u.t. 48 yrs., g.r. 4*l.* 10s., y.r. 45*l.*	435
17, Mornington-rd., u.t. 48 yrs., g.r. 8*l.*, y.r. 40*l.*	350
26, 27, and 28, Mornington-rd., f., y.r. 107*l.*	1,800
44 to 48, Mornington-rd., u.t. 48 yrs., g.r. 19*l.*, y.r. 175*l.*	1,755
Bow-rd., i.g.r. 40*l.*, u.t. 48 yrs., g.r. 12*l.*	430
10 and 11, Eleanor-st., f., w.r. 65*l.*	635
Eleanor-st., f.g.r. 3*l.*, reversion in 43 yrs.	115
By BARBER & SON (at Wellington).	
Allscott, Salop.—"Allscott Farm," 101¾ a., f.	4,200
Three freehold cottages and gardens	270

Contractions used in these lists.—F.g.r. for freehold ground-rent; i.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

MEETINGS.

FRIDAY, FEBRUARY 17.

Institution of Mechanical Engineers.—Fifty-eighth Annual General Meeting, when the Annual Report of the Council will be presented to the Meeting, the results of the Ballot for the Annual Election of the President, Vice-Presidents, and Members of Council will be announced, and the adjourned Discussion on the American Visit, 1904, will be resumed. The Paper to be read and discussed is entitled "The Strength of Columns," by Professor W. E. Lilly. 8 p.m.

Northern Architectural Association (*Students' Sketching Club*).—Annual Social Gathering and Exhibition of Sketches and Measured Drawings, in the Hall of the Church Institute, Hood-street. 7.30 p.m. to 10.30 p.m.

SATURDAY, FEBRUARY 18.

Edinburgh Architectural Association.—Dinner of the Association. 7 p.m.

MONDAY, FEBRUARY 20.

Royal Institute of British Architects.—Mr. Reginald Blomfield, A.R.A., on "Architectural Education." 8 p.m.

Glasgow Philosophical Society (*Architectural Section*).—Mr. R. Paterson on "The House as a Place to Live In." 8 p.m.

Liverpool Architectural Society.—A selection of Plates by Mr. G. E. Thompson. Subject: "Architecture of Many Countries."

Society of Arts (*Cantor Lectures*).—Mr. Dugald Clerk on "Internal Combustion Engines," II. 8 p.m.

TUESDAY, FEBRUARY 21.

Institution of Civil Engineers.—Papers to be further discussed:—(1) "Alfreton Second Tunnel," by Mr. E. F. Crosbie Trench, M.A.; (2) "The Reconstruction of Moncreiffe Tunnel," by Mr. D. McLellan. 8 p.m.

Northern Architectural Association (*Students' Sketching Club*).—Annual General Meeting. Discussion of Prize Essays. 7 p.m.

Institute of Sanitary Engineers, Ltd. (*Lectures in Practical Sanitary Science*).—Mr. A. A. H. Scott on "Quantities and Measurements of Sanitary Works." 7 p.m.

Society of Arts (*Applied Art Section*).—Mr. M. H. Spielmann, F.S.A., on "The Queen Victoria Memorial as Compared with other Royal Memorials." Mr. John Belcher, A.R.A., will preside. 8 p.m.

WEDNESDAY, FEBRUARY 22.

London Master Builders' Association.—Annual Dinner, and Presentation to Mr. J. Howard Colls, at the "Empire Hall," Trocadero Restaurant, Piccadilly-circus, W. 6.30 p.m.

Edinburgh Architectural Association.—Mr. C. E. Elcock on "Through York with a Camera," illustrated by lantern slides. 8 p.m.

THURSDAY, FEBRUARY 23.

The Quantity Surveyors' Association (*Incorporated*).—Annual Dinner, Freemasons' Tavern, Great Queen-street, W.C. 6.30 p.m.

Carpenter's Hall, London Wall (*Free Lectures on Matters Connected with Building*).—Rev. Walter Marshall, M.A., F.S.A., on "Our Old Parish Churches." 8 p.m.

Architectural Society, King's College, W.C.—Mr. R. P. Jones, M.A., on "Saracenic Architecture in Cairo," illustrated by lantern slides. 5.30 p.m.

Royal Institution.—Mr. J. J. H. Teall, M.A., on "Recent Work of the Geological Survey," II. 5 p.m.

Leeds and Yorkshire Architectural Society.—Mr. Maurice B. Adams on "Modern Libraries." 6.30 p.m.

Institution of Electrical Engineers.—Continuation of discussion on Mr. G. L. Addenbrooke's paper on "The Value of Overhead Mains for Electric Distribution in the United Kingdom." 8 p.m.

Society of Antiquaries.—8.30 p.m.

Tramways and Light Railways Association (*Society of Arts, John-street, Adelphi, W.C.*).—Mr. Herbert Jones on "The Waterloo and City Railway." 8 p.m.

FRIDAY, FEBRUARY 24.

Architectural Association.—Mr. F. J. Osborne Smith on "Country Houses and Accessory Buildings." 7.30 p.m.

Institution of Civil Engineers (Students' Meeting).—Papers to be read:—(1) "Morecambe Sewerage: Method of Laying a 15-in. Cast-Iron Sewer under the London and North-Western Railway," by Mr. F. D. Flint: (2) "The Reconstruction of Bow Bridge over the River Lea," by Mr. H. M. Rootham. 8 p.m.

SATURDAY, FEBRUARY 25.

Royal Institution.—Mr. D. G. Hogarth, M.A., on "Archæology," I. 3 p.m.

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PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.	
Hard Stocks	1 12 0	per 1000 alongside, in river.
Rough Stocks and Grizzles	1 8 0	" " "
Facing Stocks	2 5 0	" " "
Shippers	2 5 0	" " "
Flettons	1 8 0	" at railway depôt.
Red Wire Cuts	1 14 0	" " "
Best Fareham Red	3 12 0	" " "
Best Red Pressed Ruabon Facing	5 0 0	" " "
Best Blue Pressed Staffordshire	4 4 0	" " "
Do. Bullnose	4 10 0	" " "
Best Stourbridge Fire Bricks	4 8 0	" " "
GLAZED BRICKS.		
Best White and Ivory Glazed Stretchers	12 0 0	" " "
Headers	11 0 0	" " "
Quoins, Bullnose, and Flats	16 0 0	" " "
Double Stretchers	19 0 0	" " "
Double Headers	16 0 0	" " "
One Side and two Ends	19 0 0	" " "
Two Sides and one End	20 0 0	" " "
Splays, Chamferred, Squints	20 0 0	" " "
Best Dipped Salt Glazed Stretchers, and Header	12 0 0	" " "
Quoins, Bullnose, and Flats	14 0 0	" " "
Double Stretchers	15 0 0	" " "
Double Headers	14 0 0	" " "
One Side and two Ends	15 0 0	" " "
Two Sides and one End	15 0 0	" " "
Splays, Chamferred, Squints	14 0 0	" " "
Second Quality White and Dipped Sal Glazed	2 0 0	" less than best.

	s. d.	
Thames and Pit Sand	7 0	per yard, delivered.
Thames Ballast	5 9	" "
Best Portland Cement	27 0	per ton, "
Best Ground Blue Lias Lime	20 0	" "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime.....12s. 0d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 6d. per ton at rly. dpt.

STONE.

	s. d.	
BATH STONE—delivered on road waggons, Paddington Depôt	1 6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms Depôt	1 8¼	" "
PORTLAND STONE (20 ft. average)—Brown Whitbed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf	2 1	" "
White Basebed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf	2 2½	" "
Ancaster in blocks	1 11	per ft. cube, deld. rly. depôt.
Beer "	1 6	" "
Greenshill "	1 10	" "
Darley Dale in blocks	2 4	" "
Red Corsehill "	2 5	" "
CloseburnRedFreestone	2 0	" "
Red Mansfield "	2 4	" "
YORK STONE—*Robin Hood Quality.*		
Scappled random blocks	2 10	" "
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3	per ft. super. "
6 in. rubbed two sides ditto, ditto	2 6	" "
3 in. sawn two sides slabs (random sizes)	0 11½	" "
2 in. to 2½ in. sawn one side slabs (random sizes)	0 7½	" "
1½ in. to 2 in. ditto, ditto	0 6	" "

STONE (*continued*).

	s. d.	
HARD YORK—		
Scappled random blocks	3 0	per ft. cube. deld. rly. depôt.
6 in. sawn two sides, landings to sizes (under 40 ft. super.)	2 8	per ft. super. "
6 in. rubbed two sides ditto	3 0	" "
3 in. sawn two sides (slabs random sizes)	1 2	" "
2 in. self-faced random flags	0 5	" "

	s. d.	
Hopton Wood (Hard Bed) in blocks	2 3	per ft. cube. deld. rly. depôt.
" " " 6 in. sawn both sides landings	2 7	per ft. super. deld. rly. depôt.
" " " 3 in. do.	1 2½	" "

SLATES.

in. in.	£ s. d.	
20 × 10 best blue Bangor	13 2 6	per 1000 of 1200 at r. d.
20 × 12 " "	13 17 6	" "
20 × 10 first quality "	13 0 0	" "
20 × 12 " " "	13 15 0	" "
16 × 8 " " "	7 5 0	" "
20 × 10 best blue Portmadoc	12 12 6	" "
16 × 8 " "	6 12 6	" "
20 × 10 best Eureka unfading green	15 17 6	" "
20 × 12 " "	18 7 6	" "
18 × 10 " "	13 5 0	" "
16 × 8 " "	10 5 0	" "
20 × 10 permanent green	11 12 6	" "
18 × 10 " "	9 12 6	" "
16 × 8 " "	6 12 6	" "

TILES.

	s. d	
Best plain red roofing tiles	42 0	per 1000 at rly. depôt.
Hip and Valley tiles	3 7	per doz. " "
Best Brosely tiles	50 0	per 1000 " "
Do. Ornamental tiles	52 6	" " "
Hip and Valley tiles	4 0	per doz. " "
Best Ruabon red, brown, or brindled do. (Edwards)	57 6	per 1000 " "
Do. Ornamental do	60 0	" " "
Hip tiles	4 0	per doz. " "
Valley tiles	3 0	" " "
Best Red or Mottled Staffordshire do. (Peakes)	51 9	per 1000 " "
Do. Ornamental do	54 6	" " "
Hip tiles	4 1	per doz. " "
Valley tiles	3 8	" " "
Best "Rosemary" brand plain tiles	48 0	per 1000 " "
Best Ornamental tiles	50 0	" " "
Hip tiles	4 0	per doz. " "
Valley tiles	3 8	" " "
Best "Hartshill" brand plain tiles, sand faced	50 0	per 1000 " "
Do. pressed	47 6	" " "
Do. Ornamental do	50 0	" " "
Hip tiles	4 0	per doz. " "
Valley tiles	3 6	" " "

WOOD.

BUILDING WOOD.	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in	13 10 0	15 0 0
Deals: best 3 by 9	13 0 0	14 0 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11 0 0	12 0 0
Battens: best 2½ by 6 and 3 by 6	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less thn best
Battens: seconds	0 10 0	" " "
2 in. by 4 in. and 2 in. by 6 in.	9 0 0	10 0 0
2 in. by 4½ in. and 2 in. by 5 in.	8 10 0	9 10 0
Foreign Sawn Boards—		
1 in. and 1¼ in. by 7 in.	0 10 0	more than battens.
¾ in.	1 0 0	"

	At per load of 50 ft.	
Fir timber: best middling Danzig or Memel (average specification)	4 10 0	5 0 0
Seconds	4 0 0	4 10 0
Small timber (8 in. to 10 in.)	3 12 6	3 15 0
Small timber (6 in. to 8 in.)	3 0 0	3 10 0
Swedish balks	2 10 0	3 0 0
Pitch-pine timber (30 ft. average)	3 5 0	3 15 0

JOINERS' WOOD.	At per standard.	
White Sea: first yellow deals, 3 in. by 11 in	24 0 0	25 0 0
3 in. by 9 in.	22 0 0	23 0 0
Battens, 2½ in. and 3 in. by 7 in.	16 10 0	18 0 0
Second yellow deals, 3 in by 11 in.	18 10 0	20 0 0
" " 3 in. by 9 in.	17 10 0	19 0 0
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	14 10 0
Third yellow deals, 3 in. by 11 in. and 9 in.	13 10 0	15 0 0
Battens, 2½ in. and 3 in. by 7 in.	11 0 0	12 0 0
Petersburg: first yellow deals, 3 in. by 11 in.	21 0 0	22 10 0
Do. 3 in. by 9 in	18 0 0	19 10 0
Battens	13 10 0	15 0 0
Second yellow deals, 3 in. by 11 in.	16 0 0	17 0 0
Do. 3 in. by 9 in	14 10 0	16 0 0
Battens	11 0 0	12 10 0
Third yellow deals, 3 in. by 11 in.	13 0 0	14 0 0
Do. 3 in. by 9 in	12 10 0	14 0 0
Battens	10 0 0	11 0 0
White Sea and Petersburg:—		
First white deals, 3 in. by 11 in.	14 10 0	15 10 0
" " 3 in. by 9 in.	13 10 0	14 10 0
Battens	11 0 0	12 0 0
Second white deals, 3 in. by 11 in.	13 10 0	14 10 0
" " 3 in. by 9 in.	12 10 0	13 10 0
" " battens	10 0 0	11 0 0
Pitch-pine: deals	16 10 0	20 0 0
Under 2 in. thick extra	0 10 0	1 0 0
Yellow Pine—First, regular sizes	40 0 0	upwards.
Oddments	28 0 0	"
Seconds, regular sizes	30 0 0	"
Yellow Pine oddments	25 0 0	"
Kauri Pine—Planks, per ft. cube	0 3 6	0 5 0
Danzig and Stettin Oak Logs—		
Large, per ft. cube	0 3 0	0 3 6
Small " "	0 2 6	0 2 9
Wainscot Oak Logs, per ft. cube.	0 5 0	0 5 6

WOOD (*continued*).

JOINERS' WOOD (*continued*).	At per standard. £ s. d.	£ s. d.
Dry Wainscot Oak, per ft. sup. as inch	0 0 8	0 0 9
¾ in. do. do.	0 0 7	—
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0 0 9	0 1 0
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 6
Dry Walnut, American, per ft. sup. as inch	0 0 10	0 1 0
Teak, per load	17 0 0	21 0 0
American Whitewood Planks, per ft. cube	0 4 0	0 5 0
Prepared Flooring, etc.—	Per square.	
1 in. by 7 in. yellow, planed and shot	0 13 6	0 17 6
1 in. by 7 in. yellow, planed and matched	0 14 0	0 18 0
1¼ in. by 7 in. yellow, planed and matched	0 16 0	1 0 0
1 in. by 7 in. white, planed and shot	0 12 0	0 14 6
1 in. by 7 in. white, planed and matched	0 12 6	0 15 0
1¼ in. by 7 in. white, planed and matched	0 15 0	0 16 6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0 11 0	0 13 6
1 in. by 7 in. do. do.	0 14 0	0 18 0
¾ in. by 7 in. white do. do.	0 10 0	0 11 6
1 in. by 7 in. do. do. do.	0 12 9	0 15 0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	5 15 0 ...	6 15 0
Compound Girders, ordinary sections	7 5 0 ...	8 7 6
Steel Compound Stancheons	9 2 6 ...	10 12 6
Angles, Tees and Channels, ordinary sections	7 7 6 ...	8 7 6
Flitch Plates	7 15 0 ...	8 5 0
Cast Iron Columns and Stanchions including ordinary patterns	6 12 6 ...	7 15 0

METALS.

IRON—	Per ton, in London. £ s. d.	£ s. d.
Common Bars	7 0 0 ...	7 10 0
Staffordshire Crown Bars, good merchant quality	7 10 0 ...	8 0 0
Staffordshire "Marked Bars"	9 10 0 ...	—
Mild Steel Bars	8 5 0 ...	8 15 0
Hoop Iron, basis price	8 15 0 ...	9 0 0
" " Galvanized	16 10 0 ...	—
(*And upwards, according to size and gauge.)		
Sheet Iron, Black—		
Ordinary sizes to 20 g.	9 0 0 ...	—
" " 24 g.	10 0 0 ...	—
" " 26 g.	11 15 0 ...	—
Sheet Iron, Galvanised, flat, ordinary quality—		
Ordinary sizes—6 ft. by 2 ft. to 3 ft. to 20 g.	12 10 0 ...	—
Ordinary sizes to 22 g. and 24 g.	13 0 0 ...	—
" " 26 g.	14 0 0 ...	—
Sheet Iron, Galvanised, flat, best quality—		
Ordinary sizes to 20 g.	15 10 0 ...	—
" " 22 g. and 24 g.	16 0 0 ...	—
" " 26 g.	17 10 0 ...	—
Galvanised Corrugated Sheets—		
Ordinary sizes 6 ft. to 8 ft. 20 g.	12 10 0 ...	—
" " 22 g. and 24 g.	13 0 0 ...	—
" " 26 g.	13 15 0 ...	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	11 0 0 ...	—
Best Soft Steel Sheets, 22 g. & 24 g.	12 0 0 ...	—
" " " 26 g.	13 10 0 ...	—
Cut nails, 3 in. to 6 in.	9 0 0 ...	9 10 0

(Under 3 in., usual trade extras.)

LEAD, &c.

	Per ton, in London. £ s. d.	£ s. d.
LEAD—Sheet, English, 3lb. and up	15 5 0 ...	—
Pipe in coils	15 15 0 ...	—
Soil pipe	18 5 0 ...	—
Compo pipe	18 5 0 ...	—
ZINC—Sheet—		
Vieille Montagne ton	30 15 0 ...	—
Silesian	30 10 0 ...	—
COPPER—		
Strong Sheet per lb.	0 0 10 ...	—
Thin " "	0 0 11 ...	—
Copper nails "	0 0 10 ...	—
BRASS—		
Strong Sheet "	0 0 9½ ...	—
Thin " "	0 0 10 ...	—
TIN—English Ingots "	0 1 4½ ...	—
SOLDER—Plumbers' "	0 0 6½ ...	—
Tinmen's "	0 0 8 ...	—
Blowpipe "	0 0 9 ...	—

ENGLISH SHEET GLASS IN CRATES.

	23d. per ft. delivered.	
15 oz. thirds	2d.	" "
" fourths	3d.	" "
21 oz. thirds	3d.	" "
" fourths	4d.	" "
26 oz. thirds	4d.	" "
" fourths	5d.	" "
32 oz. thirds	5d.	" "
" fourths	6d.	" "
Fluted Sheet, 15 oz.	4d.	" "
" 21 oz.	4d.	" "
⅛ Hartley's Rolled Plate	2d.	" "
3/16 " " "	2½d.	" "
¼ " " "	2½d.	" "

OILS, &c.

		£ s. d.
Raw Linseed Oil in pipes	per gallon	0 1 4
" " " in barrels	"	0 1 5
" " " in drums	"	0 1 7
Boiled " " in pipes	"	0 1 6
" " " in barrels	"	0 1 7
" " " in drums	"	0 1 9
Turpentine, in barrels	"	0 3 4
" in drums	"	0 3 6
Genuine Ground English White Lead	per ton	19 15 0
Red Lead, Dry	"	19 5 0
Best Linseed Oil Putty	per cwt.	0 6 6
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

ALDERSHOT.—For Aldershot North Camp post-office:—

Higgs & Outhwaite	£1,740	Martin, Wells, & Co., Ltd.	£1,350
G. Kemp	1,525	P. J. Cæsar	1,350
J. Shelbourne & Co.	1,470	W. H. Lorden & Son*	1,349
Johnson & Co.	1,460	Drowley & Co.‡	1,270
Crosby & Co.	1,429	East & Hyde‡	1,167
Mussellwhite & Sapp	1,420		

‡ Withdrawn.

AUCHTERMUCHTY.—For waterworks, for the Town Council and Cupar District Committee of the County Council of Fife combined. Mr. H. Bruce, C.E., Cupar. Quantities by engineer:—

T. Forgan & Sons	£3,173 17 2	Stirling & Kinneburgh	£2,301 10 10
A. McRuire & Son	3,090 19 1	W. Henderson & Son	2 287 10 0
A. Stark & Son	2,852 2 0	J. Martin	2,273 17 3
W. Beattie & Sons	2,688 16 10	J. Strachan & Son	2,273 5 6½
W. Mitchell & Sons	2,519 5 0	G. Mackay & Son	2,270 7 11
Macdougall & McMillan	2,426 3 3	A. M. White & Son	2,259 14 11
D. Gilmour	2,410 11 6	J. MacKay	2,254 0 8
J. Gray & Sons	2,409 2 10	A. Stewart	2,224 10 4
J. & J. Farmer	2,346 13 8	H. Suttie	2,224 0 0
R. C. Brebner & Co.	2,382 1 7	W. Spittal	2,166 11 3
J. Millar & Sons	2,311 7 6	T. Christie	2,155 9 7
		W. Jackson, Strathyre†	2,030 0 0

BRADFORD. — For joiner's and cabinet-maker's work in the enlargement of the Central Offices, Manor-row, for the Guardians. Messrs. Empsall & Clarkson, architects, 7, Exchange, Bradford:—

T. Taylor & Son, Salem-street, Bradford*.. £1,185

BRADFORD.—For erecting two hospitals at the Union Workhouse, Horton-lane, for the Guardians. Mr. F. Holland, Engineer and Architect, 11, Parkinson's-chambers, Hustlergate, Bradford:—

Children's Hospital.

Masons: O. Booth & Son*	£3,782 0 0
Joiner: W. Binns*	879 6 0
Plumber: R. Townend*	567 0 0
Plasterers: C. Howroyd & Sons*	844 15 0
Slaters: Hill & Nelson*	130 0 0
Electricians: Smith & Croft*	148 13 0
Painter: J. Marsland*	67 2 2

Maternity Hospital.

Masons: O. Booth & Sons*	3,292 0 0
Joiner: W. Binns*	859 5 0
Plumber: R. Townend*	531 0 0
Plasterers: C. Howroyd & Sons*	732 0 0
Slaters: Hill & Nelson*	118 0 0
Electricians: Smith & Croft*	123 18 0
Painter: J. Marsland*	64 8 9½

[All of Bradford.]

DROGHEDA.—For heating new public library. Mr. F. H. Tallan, architect, 35B, Kildare-street, Dublin:—

J. Kennedy	£160 0	Musgrave & Co., Belfast*	£105 10
R. Dawson & Co.	160 0	W. Baird	105 0
Maguire & Gatchell	149 10	Roddy & Co.‡	55 0
D. Taylor & Co.	117 0		

‡ Portion of work.

GUILDFORD.—For the foundations and basewalls of new casual wards, labour sheds, and workshops, etc., at Workhouse, for the Guardians. Mr. E. L. Lunn, architect, 36, High-street, Guildford:—

Cunningham, Forbes, & Co.	£1,975 3 11	Swayne & Sons	£1,047 0 0
A. Johnson	1,295 0 0	S. Ellis	1,027 0 0
Higgs & Outhwaite	1,176 0 0	Mitchell Bros.	1,025 0 0
Tribe & Robinson	1,140 0 0	A. & F. Gammon	995 0 0
C. E. Hughes	1,105 0 0	Higlett & Hammond	988 0 0
Drowley & Co.	1,105 0 0	Warren & Killick	985 0 0
R. Smith	1,047 0 0	W. Smith & Sons, Farnham-road, Guildford*	982 16 0
Crossby & Co.	1,047 0 0		

EAST SHEEN.—For repairs at The Angles, East Sheen. Mr. R. B. Rowell, architect and surveyor, Triangle Corner, East Sheen, S.W.:—

S. N. Soole & Son	£208
R. T. Hughes & Co., Ltd., Portobello Works, Mortlake*	179

FARNHAM (Surrey).—For erecting a new grammar school, for the Governors. Messrs. Jarvis & Richards, architects, 36, Victoria-street, Westminster, S.W.:—

Udall & Co.	£8,387	W. H. Lorden & Son	£7,373
Ennes Bros.	8,107	W. J. Renshaw	7,366
S. F. Halliday	8,037	A. Hudson & Co.	7,350
W. Wallis	7,996	Tompsett & Co.	7,313
Potter Bros.	7,995	G. Kemp	7,309
A. G. Mardon	7,992	J. Smith & Sons	7,299
Chessum & Son	7,930	Goddard & Sons	7,283
Parnell & Sons	7,878	A. J. Colborne	7,278
Ferguson & Co.	7,858	Longley & Co.	7,243
F. G. Minter	7,773	W. Watson	7,215
Holliday & Greenwood	7,708	H. Harris	7,174
T. J. Hawkins & Co.	7,675	Oak Building Co.	7,159
Martin, Wells, & Co.	7,666	J. Shelbourne & Co.	7,152
Jenkins & Son	7,595	Peerless, Dennis, & Co.	7,120
Kirk & Randall	7,575	Norman & Burt	7,097
W. & D. Wilkins	7,570	G. Grimwood & Sons	7,069
Mussellwhite & Sapp	7,560	East & Hyde	7,057
R. Dean & Co.	7,538	E. C. Hughes	6,965
Willcock & Co., and Drowley & Co.	7,496	H. Kent	6,907
Thomas & Edge	7,491	J. J. Wise	6,853
Y. J. Lovell	7,490	Annett & Sons	6,850
Goodall & Sons	7,467	A. Churter	6,603
McC. E. Fitt	7,393	Crosby & Co.	6,580

HARROGATE.—For street works in Dragon-terrace and roads off Dragon-road and Dragon-avenue, for the Corporation. Mr. F. Bagshaw, Borough Engineer and Surveyor, Harrogate:—

Forest-avenue from Knaresborough-road to No. 23.

E. Long, 7, Forest-avenue, Starbeck, Harrogate* £289 15 2

Back Road at Side of No. 1 *and at Rear of Nos.* 1 *to* 23, *Forest-avenue.*

E. Long, 7, Forest-avenue, Starbeck, Harrogate* £157 3 6

Back Road at Side and Rear of No. 2, *Forest-avenue, and Extending to the Rear of No.* 14, *Belmont-grove.*

E. Long, 7, Forest-avenue, Starbeck, Harrogate* £116 3 10

Dragon-terrace.

C. H. Dickinson, Mayfield House, Forest-lane, Starbeck* £267 17

Back Road from Dragon-avenue to Dragon-road.

G. Parsons, Harlow-hill, Harrogate* £200 12 2

Back Road on the N.W. Side of and at the Rear of Dragon-avenue.

G. Parsons, Harlow-hill, Harrogate* £323 1 6

Back Road from Dragon-terrace to Rear of No. 16, *Dragon-road.*

C. Nettleton, Balmoral House, Bilton, Harrogate* £203 2 4

Back Road at the Rear of Nos. 1 *to* 9, *Dragon-terrace.*

C. Nettleton, Balmoral House, Bilton, Harrogate* £52 3 9

HESSENFORD.—For erecting schoolroom, classrooms, etc., in connexion with Wesleyan chapel at Hessenford, near St. Germans, for the Hessenford Trustees. Mr. S. P. Hosking, architect, Landrake, St. Germans:—

Alford	£600 0 0	W. E. Bennett	£455 0 0
White & Laundry	540 0 0	Stephens	444 10 0
Snell & Son	497 12 7	W. Dawe	403 0 0
J. S. Elliott	469 10 0	R. Turner, W. Looe*	350 0 0

ILFORD.—For alterations and additions to electricity works, for the Urban District Council. Mr. H. Shaw, Surveyor, Town Hall, Ilford:—

Norton Bros. & Co., Balfour-road, Ilford* £162 1 1

LEEK.—For private street works, Junction-road, for the Urban District Council. Mr. W. E. Beacham, Surveyor, Town Hall, Leek. Quantities by Surveyor:—

Sutherland & Thorpe	£1,767 11 10	Simpson & Son	£1,533 19 5
T. Grace	1,750 0 0	Sanders & Torrance, Hanley*	1,532 9 4
F. Barke	1,666 6 6		
J. Owen	1,647 0 0		

LONDON.—For repairs at No. 7, Commercial-road, Westminster, for the Westminster City Council:—

J. R. Sims	£338	T. W. Haylock	£273
Love & Co.	322	W. Wright & Son*	247
T. Coulthard	284		

LONDON EDUCATION COMMITTEE TENDERS.

LONDON.—For the erection of a school on the "Brecknock" site (St. Pancras, E.) for the accommodation of thirty blind children, for the London County Council Education Committee:—

Killby & Gayford	£2,862 0 0	Thompson & Beveridge	£2,674 0 0
G. S. S. Williams & Son	2,840 0 0	E. Lawrance & Sons	2,657 0 0
Marchant & Hirst	2,795 0 0	Stevens Bros.	2,648 0 0
J. Grover & Son	2,790 0 0	W. M. Dabbs & Son	2,646 0 0
F. Gough & Co.	2,781 0 0	L. H. & R. Roberts	2,595 0 0
A. Porter	2,719 0 0	T. L. Green	2,587 0 0
General Builders, Ltd.	2,715 0 0	Lole & Co., Trafalgar-sq., Chelsea*	2,492 13 7
Treasure & Son	2,692 0 0		

[The architect's estimate comparable with these tenders is £2,680.]

LONDON—For (*a*) playsheds, (*b*) extension of boiler-room, Compton-street, Finsbury, for the London County Council Education Committee:—

J. Willmott & Sons	£490 0	McCormick & Sons	£444 0
W. Densham & Sons	477 10	F. Bull	443 10
General Builders, Ltd.	467 0	Stevens Bros.	443 0
G. S. S. Williams & Son	465 0	A. J. Sheffield	439 0
L. H. & R. Roberts	459 0	J. Stewart	424 0
		Marchant & Hirst, 136, Highgate-road*	414 0

LONDON.—For boiler and hot-water supplies to the washing, drying, and ironing rooms of the laundry in connexion with the Oak Lodge Residential School for Deaf Girls, Clapham, for the London County Council Education Committee:—

W. G. Cannon & Sons	£169 10	Palowkar & Sons	£94 0
Benham & Sons, Ltd.	117 15	Brightside Foundry & Engineering Co., Ltd.	89 0
Wontner-Smith, Gray, & Co.	99 10	R. Clarke	83 0
Bates & Sons	96 7	G. & E. Bradley, 68 & 70, Elfort-road, Highbury*	83 0
Stevens & Sons	94 0		

LONDON.—The tenders for the undermentioned firms for executing repairs to the heating apparatus in London County Council schools in the twelve groups specified below, on the printed schedule of prices (with addendum), with the deduction from the schedule of prices in certain cases, as stated below, were accepted:—

Group.		Terms of contract or percentage to be deducted from schedule prices.
1	J. Yetton & Co.	At schedule prices
2	Palowkar & Sons	—5
3	J. C. Christie	—7½
4	T. S. Knight & Sons	At schedule prices
5	Comyn Ching & Co., Ltd.	—5
6	R. H. & J. Pearson, Ltd.	At schedule prices
7	Brightside Foundry & Engineering Co., Ltd.	—5
8	Brightside Foundry & Engineering Co., Ltd.	—5
9	J. Defries & Sons, Ltd.	At schedule prices
10	W. G. Cannon & Sons	,,
11	Stevens & Sons	,,
12	Wenham & Waters, Ltd.	,,

LONDON.—For the construction of a new sewer along Stroud Green-road, Tollington Park-road, and Grove-road, into the Holloway storm relief sewer, for the London County Council:—

J. Byrom	£36,228 16 7
C. Ford	34,222 0 0
Muirhead, Greig, & Matthews	32,488 14 3
Pedrette & Co.	32,362 11 0
E. Iles	32,160 0 0
W. Kennedy, Ltd.	31,372 4 0
Lock, Andrews, & Price	30,513 6 10
W. Scott & Middleton, Ltd.	30,866 5 0
Bentley & Loch	30,090 3 9
R. H. B. Neal, Ltd.	29,906 0 0
J. D. Nowell & Sons	29,418 12 4
Kelletts, Ltd.	27,728 18 6
J. Mowlem & Co., Ltd.	27,646 10 3
J. B. Squire & Co.	26,808 2 11
Wilkinson Bros.	26,635 7 11
Johnson & Langley	26,478 18 0
W. Manders	25,534 16 1
J. Smith & Co., West Kilbride, Ayrshire*	25,420 0 7

[The chief engineer's estimate of the cost of the work was £29,430.]

LONDON.—For the erection of cottages on the Norbury Estate, for the London County Council:—

	Fifty-two Cottages (arranged in five blocks).	Alternative Estimates.		Net Amount of Tender.
		Additions.	Omissions.	
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
H. L. Holloway	14,754 0 0	489 0 0	1,560 0 0	13,683 0 0
J. Carmichael	14,750 0 0	443 0 0	964 0 0	14,229 0 0 ‡
C. Wall, Ltd.	14,649 0 0	384 7 10	1,589 3 7	13,444 4 3
E. Lawrance & Sons	14,449 0 0	560 11 4	1,300 3 5	13,709 7 11
W. Smith & Son	14,415 0 0	364 7 2	1,982 12 2	12,796 15 0
Spencer, Santo, & Co.	14,400 0 0	295 9 6	790 19 5	13,904 10 1
W. Johnson & Co., Ltd.	14,351 0 0	363 9 9	1,413 10 7	13,300 19 2
J. Parsons	13,989 0 0	272 0 0	1,691 0 0	12,570 0 0
Prestige & Co.	13,980 13 10	635 11 3	1,400 17 7	13,215 7 6
J. & C. Bowyer	13,956 0 0	408 3 8	1,231 15 11	13,132 7 9
Holloway Bros. (London), Ltd.	13,935 0 0	483 5 11	1,195 5 11	13,223 0 0
F. & H. F. Higgs	13,770 0 0	396 0 0	1,112 0 0	13,054 0 0
J. Smith & Sons, Ltd.	13,683 0 0	394 0 0	1,500 0 0	12,577 0 0
F. & T. Thorne, Isle of Dogs*‡	13,176 0 0	345 4 8	1,685 17 10	11,835 6 10
Kirk & Randall	12,973 0 0	346 3 4	1,288 9 10	12,030 13 6

‡ Also for the erection of three other blocks, containing forty-three cottages, at the schedule of prices contained in the tender.

TENDERS—*Continued on page* 193.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, etc., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom Required.	Premiums.	Designs to be Delivered
*Plans and Designs for Cottages	Cheap Cottages Exhibition	Not stated	Mar. 25, etc.

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tenders, etc., supplied by	Tenders to be Delivered
Paviors' Labour for Tramways	Rochdale Tramways Committee	S. S. Platt, Borough Surveyor, Town Hall, Rochdale	Feb. 20
Points, Crossings, and Special Work for Tramways	Stockport Corporation	J. Atkinson, Borough Surveyor, Stockport	do.
Road Materials	Towcester R.D.C.	W. Sheppard, Surveyor, Towcester	do.
Two Iron Bandstands	Beckenham U.D.C.	J. A. Angell, Surveyor, Council Offices, Beckenham	do.
Public Convenience, Balcarres-street, Morningside	Edinburgh City Council	Burgh Engineer, City-chambers, Edinburgh	do.
Weighhouse, Balcarres-street, Morningside	do.	do.	do.
Repairs, Old and New Quays, Campbeltown	Harbour Committee	J. Fullarton, Burgh Surveyor, Campbeltown, Scotland	do.
Alterations to Drains	East Preston Guardians	F. Howard, F.S.I., Town Offices, Littlehampton	do.
Mortuary, East Preston Workhouse	do.	do.	do.
Matchboarding Ceilings at Bolton-hill Council School	Steynton Local Managers	D. E Thomas, Architect to P.E.A., 17, Victoria-pl., Haverfordwest	do.
Painters' Work, Dewar-place Electricity Station	Edinburgh Corporation	R. Morham, City Arch. Public Works Office, City-chbrs., Edinburgh	do.
Painters' Work, M'Donald-road Electricity Station	do.	do.	do.
Alterations on St. Andrew's Halls	Glasgow Corporation	Office of Public Works, City-chambers, Glasgow	Feb. 2
Infirmary, Nurses' Home, etc., Kingston-by-Sea	Steyning Guardians	E. Cripps, Clerk, Union Offices, New Shoreham, Sussex	do.
Private Improvement Works	Bootle Corporation	Borough Engineer's Office, Bootle	do.
Five Double-deck Roof-covered Tramcars	East Ham Borough Council	W. C. Ullmann, Engineer, Nelson-street, East Ham, E.	do.
Wrought-Iron Hurdle Fencing	Leicester Parks, etc., Committee	E. G. Mawbey, Borough Engineer, Town Hall, Leicester	do.
Urinals and Water Closets	do.	do.	do.
Granite	Foleshill R.D.C.	A. P. Oswin, Council Offices, Little Heath, Foleshill	do.
Forty C.I. Manhole Covers & Six C.I. Lamphole Cov.	Woodford U.D.C.	W. Farrington, Surveyor, Council Offices, Woodford Green	do.
Laying 439 lineal ft. of Pipe Sewer	do.	do.	do.
Drainage, Kerbing, and Paving, Woodford Green	do.	do.	do.
Tramps' Cells	Aylsham Guardians	H. J. Gidney, Clerk, Aylsham, Norfolk	do.
Street Works	Cardiff Corporation	W. Harpur, Borough Engineer, Town Hall, Cardiff	do
Supply, etc., of Stones	do.	do.	do.
Stores	do.	do.	do.
Portland Cement	do.	do.	do.
Erection, etc., of Market Stalls	Kingston-upon-Thames Corporation	H. A. Winser, Town Clerk, Kingston-upon-Thames	Feb. 22
Team Labour	Spilsby R.D.C.	G. B. Walker, Clerk, Spilsby	do.
Shedding, etc., Halesworth	Suffolk Agricultural Association	Secretaries, 6, Butter-market, Ipswich	do.
Galvanised Wrought-Iron Piping and Fittings	Crown Agents for Colonies	Crown Agents, Whitehall-gardens, S.W.	do.
House, Medomsley-road, Consett	Mr. J. Hull	T. H. Murray, Architect, Front-street, Consett	do.
House, George-street, Consett	Mr. W. Aynsley	do.	do.
Twelve Automatic Rotary Distributors at S'w'ge. Wks.	Darwen Corporation	R. W. Smith-Saville, Borough Engineer, Town Hall, Darwen	do.
Dwelling-house at the Butts, Purton, Wilts	Mr. A. C. Mussell	W. Drew & Sons, Architects & Surveyors, 28, Regent-circus, Swind'n	do.
Additions to Schools at Logie, Durno, and Fetternear	.....	R. G. Wilson, Architect, 181A, Union-street, Aberdeen	do.
Materials	Ashton-under-Lyne Corporation	J. T. Earnshaw, Borough Surveyor, Town Hall, Ashton-under-Lyne	do.
Sewer works, Campbeltown	Town Council	J. Fullarton, Burgh Surveyor, Campbeltown	do.
Two Semi-Detached Houses, Bransty	.....	J. S. Moffat, Architect, 53, Church-street, Whitehaven	do.
Sewer, St. Stephen's-by-Saltash	St. Germans R.D.C.	F. E. Cleverton, 4, Buckland-terrace, Plymouth	do.
Stone-fronted Building at Southampton-row, W.C.	Royal London Friendly Society	Corderoy, Selby, & Corderoy, Surveyors, Westminster, S.W.	do.
Granite	Brixworth R.D.C.	W. C. Woodford, Clerk, 18, Market-square, Northampton	Feb. 23
Hauling Materials	do.	Mr. Wykes, 5, Elysium-terrace, Northampton	do.
Fire Alarms	Twickenham U.D.C.	F. W. Pearce, Surveyor, Town Hall, Twickenham	do.
Granite and Slag	Nottinghamshire C.C.	E. P. Hooley, Shire Hall, Nottingham	do.
Team Labour	do.	do.	do.
Materials	Grantham R.D.C.	A. H. Malim, Clerk, Grantham	do.
Street Paving	Gateshead Coporation	N. P. Pattinson, Borough Surveyor, Town Hall, Gateshead	do.
Electrical and Engineers' Stores	Islington Borough Council	Town Hall, Upper-street, N.	do.
350 tons of Guernsey Granite Spalls	Greenwich Guardians	S. Saw, Clerk, The Union Offices	do.
Extension of Workshops, Charles-street, St. Rollox	Glasgow Corporation	D. M'Coll, 38, Cochrane-street, Glasgow	do.
Incandescent Mantles	Rotherham Gas Committee	Gas Engineer, Town Hall, Rotherham	Feb. 24
Fore-c'rts, Rds., & F'tpaths, Northallerton County Hall	North Riding C.C.	W. H. Brierley, County Architect, 13, Lendal, York	do.
Four 250-kw. Synchronons 3-phase Motor Generators	Sunderland Corporation	J. F. C. Snell, Borough Electrical Engineer, Town Hall, Sunderland	do.
Additions, etc., to "Overnoons," Fernhurst	Mr. A. G. Burton	J. Childs, Bridgelands, Fernhurst, near Haslemere	do.
Annual Supplies	Stafford Corporation	W. Blackshaw, Borough Engineer, Borough Hall, Stafford	do.
Haulage of Road Materials	Ledbury R.D.C.	R. G. Gurney, Surveyor, Ledbury	do.
Team Labour	do.	do.	do.
Stone, etc.	Tadcaster R.D.C.	T. Scott, Surveyor, Aberford, near Leeds	do.
450 lineal yds. of Roadway (Kerbing, etc.), Teignmouth	.....	S. Dobell, Architect, Queen-street-chambers, Exeter	do.
Bridge, Winterbourne Building Estate, Teignmouth	.....	do.	do.
800 lin. yds. of sewers, Winterbourne Bg. Est. Teignm'th.	.....	do.	do.
Sixty Three-roomed Houses, Gurranabraher Site	Cork Corporation	City Engineer's Office, Municipal-buildings, Cork	do.
Twenty-nine Two-roomed Hses., Gurranabraher Site	do.	do.	do.
*New Sorting Office, Shepherd's Bush, W.	Commissioners of H.M. Works, etc.	J. Wager, Office of Works, Storey's-gate, S.W.	do.
Sea Wall (700 yds.) at Hoylake, Cheshire	Lord Stanley of Alderley	T. Foster, Engineer, 23, Tower-buildings, Liverpool	Feb. 25
Vicarage at Cwm, Mon.	Rev. J. Ll. Croft	E. A. Johnson, F.R.I.B.A., Abergavenny	do.
Extension to Cotton Mill, Port-street, Annan	.....	Johnstone Bros., Architects, 39, Lowther-street, Carlisle	do.
Materials and Stores	Levenshulme U.D.C.	J. Jepson, Surveyor, 8A, Tiviot-dale, Stockport	do.
Surveyor's Materials	West Riding Asylums Committee	Room No. 30, County Hall, Wakefield	do.
Stores	Llandaff and Dinas Powis R.D.C.	J. Holden, Surveyor, 20, Park-place, Cardiff	do.
Materials for Roads and Haulage (Four Divisions)	Glamorgan C.C.	T. Lloyd Edwards, County Surveyor, Town Hall, Bridgend	do.
Tools and Ironmongers' Goods	do.	do.	do.
Tenements, Cumbernauld-road, Kennyhill	Glasgow Corporation	City Engineer, 64, Cochrane-street, Glasgow	do.
Buildings at St. Kieran's College, Kilkenny	The Trustees	D. W. Morris, 68, Harcourt-street, Dublin	do.
Road-metalling and Gravel	Penarth U.D.C.	E. I. Evans, Surveyor, District Council Offices, Penarth	do.
Sluice Valves, Air Valves, etc., Ogden Reservoir	Bury & District Joint Water Board	J. Cartwright, Engineer, Peel-chambers, Bury, Lancs.	do.
Valves, etc., Scout Moor Reservoir	do.	do.	do.
Pipe Line from Gin Hall Reservoir	do.	do.	do.
Residence, Watering Hill, St. Austell	Dr. A. Shaw, J.P.	B. C. Andrew, Architect, Biddick's Court, St. Austell, Cornwall	Feb. 27
Materials, etc.	Cheshunt U.D.C.	R. H. Jeffes, Engineer, Manor House, Cheshunt	do.
Rebuilding Premises in Cheap-street, Newbury	Governors, St. Bartholomew's Hosp'l	W. H. Bell, Architect, The Market-place, Newbury	do.
Hospital, Ainsworth, Lancs.	Bury & District Joint Hospital Bd.	H. Lord, Architect, 42, Deansgate, Manchester	do.
Enlargement of Simm's Cross Council School	Widnes Education Committee	F. U. Holme, Arch., Westminster-chbrs., 1, Crosshall-st., Liverpool	do.
Street Improvement Works	Penarth U.D.C	E. I. Evans, Surveyor, District Council Offices, Penarth	do.
Making-up Park-street	Mansfield Woodhouse U.D.C.	F. P. Cook, Surveyor, Leeming-chambers, Mansfield	do.
Materials and Stores	Heaton Norris U.D.C.	F. W. Brooke, Clerk, Council Offices, Heaton Moor	do.
Railway Wagon Weighbridge, Whitla-street	Belfast Harbour Commissioners	W. A. Currie, Secretary, Harbour Office, Belfast	do.
Scavenging	Wallsend Corporation	G. Hollings, Borough Surveyor, Corporation Offices, Wallsend	Feb. 28
Fire Station, Town Hall-yard, Waterloo	Waterloo-with-Seaforth U.D.C.	F. Spencer Yates, Surveyor, Town Hall, Waterloo, Liverpool	do.
Supplies and Stores	King's Norton and Northfield U.D.C.	Surveyor, 23, Valentine-road, King's Heath	do.
Granite, etc.	Middlesex C.C.	H. T. Wakelam, County Engineer, Middlesex Guildhall, Westminster	do.
Cartage of Material	do.	do.	do.

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom advertised.	Forms of Tender, etc., supplied by	Tenders to be Delivered
Annual Contracts	Deptford Borough Council	Municipal Offices, 20, Tanner's-hill, Deptford	Feb. 28
Chalk, Granite, Quartzite, and Flint	Steyning West R.D.C.	E. Cripps, Council Offices, New Shoreham, Sussex	do.
Central Fire Station, Ley-street, Ilford	Ilford U.D.C.	H. Shaw, Engineer, Town Hall, Ilford	do.
Painting and Repairs, 28, Bridge-st., Stratf'd-on-Avon	Town Council	R. Dixon, Borough Surveyor, Municipal Offices, Stratford-on-Avon	do.
Screensheds, etc., Norchard Colliery	Park Iron Ore and Coal Co., Ltd.	W. F. Butler, Engineer, Old Bank-buildings, Chester	do.
U.F. Church at Newburgh	.....	Thoms & Wilkie, Architects, 46, Reform-st., Dundee	do.
Farmhouse at Ffynonfawr, near Tal-y-bont	.....	A. O. Evans, Williams, & Evans, Architects, Pontypridd	do.
*Making-up Streets	West Ham Borough Council	Borough Engineer, Town Hall, West Ham, E.	do.
*Extension of Baths, Plaistow	do.	do.	do.
*Alterations to Prisoners' Cells, Stratford	do.	do.	do.
*Making of New Road	Ealing Town Council	Borough Engineer, Town Hall, Ealing, W.	do.
*Annual Contracts	Willesden District Council	Council's Engineer, Dyne-road, Kilburn, N.W.	do.
*Erection of Stables, Greenmore Wharf	Southwark Borough Council	Borough Engineer, Town Hall, Walworth-road, S.E.	Mar. 1
Scavenging	Steyning West R.D.C.	E. Cripps, Council Offices, New Shoreham, Sussex	do.
180 yds. Cast-Iron Water-Pipes, etc., Fitzalan-road	Littlehampton U.D.C.	H. Howard, Surveyor, Town Offices, Littlehampton	do.
Stores	Stoke-upon-Trent Corporation	A. Burton, Borough Surveyor, Town Hall, Stoke-upon-Trent	do.
Granite and Slag	Northampton R.D.C.	W. Tomalin, 14, Guildhall-road, Northampton	do.
Team Labour	do.	District Surveyor, 14, Guildhall-road, Northampton	do.
Buildings at Quay, Waterford	.....	P. M. Doyle, 76, Quay, Waterford	do.
Scavenging, etc. (Fourteen Contracts)	Llandaff and Dinas Powis R.D.C.	M. Warren, Park House, 20, Park-place, Cardiff	do.
Materials	York Corporation	A. Creer, Engineer, Guildhall, York	do.
Stores and Materials at Electricity Works	Chester Corporation	Electrical Engineer, New Crane-street, Chester	do.
Reconstr'ct'n. Gordon-rd. and Central-av., Borrowash	Shardlow R.D.C.	W. Swindell, Surveyor, Imperial-chambers, Albert-street, Derby	do.
Road Materials	Wetherby R.D.C.	E. H. Coates, Clerk, Wetherby	do.
*Making-up and Paving Streets	Fulham Borough Council	Borough Surveyor, Town Hall, Fulham, S.W.	do.
*Supplying and Fixing Gratings to Cells	Paddington Guardians	E. Howley Sim, Architect, 8, Craig's-court, Charing Cross, W.C.	do.
*Annual Contracts	Wood Green U.D.C.	Council's Surveyor, Town Hall, Wood Green, N.	do.
*Sewering and Roadmaking Works	Hornsey Town Council	Borough Engineer, 99, Southwood-lane, Highgate, N.	do.
Steel Girder Bridge over River Turch, near Farmers	Llanybyther R.D.C.	J. E. Lloyd, Clerk, 28, High-street, Lampeter	Mar. 2
Twenty-six Streets, Rawtenstall and Waterfoot	Rawtenstall Corporation	J. Johnson, Borough Surveyor, Municipal Offices, Rawtenstall	Mar. 3
Ferrybridge Waterworks	Pontefract R.D.C.	J. Waugh, C.E., Sunbridge-chambers, Bradford	do.
Stores, Electricity Department	Wimbledon U.D.C.	Electrical Engineer, Durnsford-road, Wimbledon	Mar. 4
Derbyshire Lime	Colchester U.D.C.	H. Goodyear, Borough Engineer, Town Hall, Colchester	do.
Curbing, Granite, Ragstone, etc.	do.	do.	do.
Flints	Steyning East R.D.C.	E. Cripps, Council Offices, New Shoreham, Sussex	Mar. 6
Mixed and Infants Elementary Schools, Hope	Flintshire Education Committee	S. Evans, County Surveyor, County-buildings, Mold	do.
School Buildings, Milton-street, Palfrey	Walsall Education Committee	Bailey & McConnal, Architects, Bridge-street, Walsall	do.
Cov. Service Reser. nr. How Green, Woodmansterne	Sutton District Water Co.	W. V. Graham, Engineer, 5, Queen Anne's-gate, Westminster	do.
1,200 tons of Granite Macadam	Brighouse Corporation	S. S. Haywood, Borough Engineer, Municipal Offices, Brighouse	Mar. 7
Materials and Work	Bath Co poration	C. R. Fortune, City Surveyor, Bath	do.
*Improvements on Foreshore, etc.	Beaumaris Town Council	Borough Surveyor, Raglan-street, Beaumaris	do.
Road Materials	Bingham R.D.C.	R. H. Beaumont, Clerk, Market-place, Bingham	Mar. 8
Granite Concrete Tubes and Stoneware Pipes	Basingstoke Corporation	F. R. Phipps, Borough Surveyor, Town Hall, Basingstoke	do.
Sewerage Works	do.	do.	do.
Widening the Calder Bridge, Brighouse	Brighouse Corporation	S. S. Haywood, Borough Engineer, Municipal Offices, Brighouse	Mar. 11
Granite Setts	do.	do.	do.
Carting Stone	Tadcaster R.D.C.	T. Scott, Surveyor, Aberford, near Leeds	do.
Farmhouse, Restrongnet, Mylor, Cornwall	.....	Estate Office, Carclew, Perranarworthal	do.
Electric Power & Lighting (Specifications 11, 14, 15)	Great Western Railway Co.	Kennedy & Jenkins, Engineers, 17, Victoria-street, S.W.	Mar. 13
Alteration, etc., of Horeb Calvinistic Cha. Treherbert	The Trustees	W. D. Morgan, Victoria-chambers, Pentre, Rhondda Valley	Mar. 14
*Hospital Additions, etc.	Kent County Asylums Committee	W. J. Jennings, Architect, 4, St. Margaret's-street, Canterbury	do.
*Annual Contracts	Fulham Borough Council	Town Hall, Fulham, S.W.	Mar. 15
Road and Sewer Materials	West Lancashire R.D.C.	C. Law-Green, Surveyor, Wigan-road, Ormskirk	Mar. 16
Paving, etc., Works	do.	do.	do.
Stores	Cheltenham Corporation	J. S. Pickering, Borough Surveyor, Municipal Offices, Cheltenham	Mar. 17
*Municipal Buildings	South Shields Town Council	Central Hall, Chapter-row, South Shields	Mar. 18
Main Outfall, Aberbeeg (17½ miles)	Western Valleys (Mon.) Sewerage Bd.	B. Latham, C.E., Parliament-mansions, Victoria-st., Westminster	April 8
Nantyglo Branch Sewer (6½ miles)	do.	do.	do.
Cwmtillery Branch Sewer (1½ miles)	do.	do.	do.
Ebbw Vale Branch Sewer (8½ miles)	do.	do.	do.
Cast and Wrought-Iron for Western Landing Stage	Brighton Marine Palace & Pier Co.	F. E. Francis, Secretary, Palace Pier, Brighton	No date.
Two Workshops at Garth Colliery	.....	Elders' Navigation Collieries, Ltd., Merchants' Exchange, Cardiff	do.
Excavations for Coke Ovens at Garth Colliery	.....	do.	do.
Railway Wagon Repairing Shed of Iron	.....	Windson Steam Coal Co., Ltd., 3, Bute-crescent, Cardiff	do.
Road-making, etc., at Barrasford Sanatorium	Nwct.-T., Brch. of Prev. of Con. Asso.	Nicholson & Dotchin, Archs., Clayton-chbrs., Newcastle-on-Tyne	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Assistant Surveyors	Admiralty	150*l.* per annum	No date.

Those marked with an (*) are advertised in this number. *Competitions*, iv. *Contracts*, iv. vi. viii. x. *Public Appointments*, xviii.

TENDERS—*Continued from page* 191.

LONDON.—For reinstatement after fire, and alterations and additions to Royal Artillery Theatre, Woolwich (main structure). Mr. W. G. R. Sprague, architect, Criterion-chambers, 10 and 11, Jermyn-street, S.W. Quantities by Mr. A. R. Henderson, surveyor, 47, Pall Mall, S.W.:—

Patman & Fotheringham	£8,500	Harris & Wardrop	£7,844
G. Longden & Son	8,300	C. F. Kearley	7,594
H. Lovatt	8,000	G. Munday & Son	7,381
W. Wallis	7,990	C. G. Hill	7,350
Perry & Co.	7,978	W. H. Lorden & Son	7,169

LONDON.—For reinstatement at Nos. 1, 2, 3, and 4, Rochester-square, Camden Town. Messrs. C. Sparrow & Son, surveyors, North Finchley:—

G. O. Wilby & Co.	£380	H. M. Dove	£324
W. Peake	330	Grover & Son*	324

NEWTOWN.—For alterations and additions to the Green Dragon Hotel, Newtown, for the Carlisle New Brewery Co., Ltd. Mr. H. Higginson, architect, 3, Lonsdale-street, Carlisle. Quantities by architect:—

Builders: G. Hill & Son* ....
Joiner: W. H. Reeves* .....
Plumber: T. B. Hetherington* .
Slater: J. T. Kelless* .....
Plasterers: S. Ferguson & Sons*
Painter, etc.: W. Sloan* .....
} £752 10 3

[All of Carlisle.]

PENCOED.—For the construction of a new road and drain at Penprick, for the Wimbourne Estate. Mr. J. L. Lambert, Surveyor, Prudential-buildings, Bridgend. Quantities by Surveyor:—

G. Davey	£610 0 0	R. Jones, sen.	£466 17 6
J. William	571 10 0	R. Jones, jun., Coychurch, near Bridgend*	455 10 0
T. Davies & Co.	495 15 0		
W. Jenkins	483 0 0		

RICHMOND.—For the rebuilding of the Black Horse P.H., Richmond, Surrey. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, London, E.C. Quantities supplied:—

W. R. Williams	£4,275	Soole & Sons	£3,935
Adamson & Son	4,275	Courtney & Fairbairn*	3,933
Sheffield Bros.	4,242		
Todd & Newman	4,000		

ROYSTON.—For sewage disposal works, for the Urban District Council. Mr. T. W. Witts, Surveyor, Town Hall, Royston:—

Scales & Robins	£1,550	Jacklin & Co., Royston*	£388
W. H. Hinkins	1,381		

SEDGEFIELD.—For erecting two iron verandahs to cottage blocks at Durham County Asylum, for the Visiting Committee. Mr. W. Crozier, County Architect, Shire Hall, Durham:—

	Scheme I.	Scheme II.
M. R. Draper & Sons	£569 0 0	£669 0
G. T. Manners	449 0 0	499 0
W. C. Atkinson & Son	422 7 4	498 3
Sloan & Davidson	384 15 0	461 10
J. Laidler & Sons, Durham*	335 0 0	391 4

SAUGHALL MASSIE (Cheshire).—For constructing Griffiths-road, for the Wirral Rural District Council. Mr. Thomas Davies, Surveyor, 33, Kingsland-road, Birkenhead:—

F. Hayes	£489 2 0	A. Harris	£304 0 0
S. Hutton	482 3 4	A. Vaughan	300 0 0
Maddocks & Co.	465 0 0	F. A. Mitchell	280 0 0
J. McGeoch	400 0 0	C. L. Warren	274 0 0
Bermie & Thompson	380 0 3	R. Hughes, Brimstage*	247 0 0
J. Price	313 0 0		

SHEFFIELD.—For extensions and alterations to the Blind Institution, West-street. Mr. E. Winder, architect, Corn Exchange-chambers, Sheffield:—

Gray & Son	£5,865 0	E. & W. Oxley	£4,998 0
J. Fidler, Ltd.	5,820 0	J. Eshelby & Son	4,998 0
Martin & Hughes	5,777 0	Wilkinson & Sons	4,995 0
A. Moore	5,700 0	J. & H. Wheen	4,965 0
H. Winter	5,575 0	J. Masson	4,913 10
Pinder, Bro., & Bone	5,445 0	Badger & Appleby	4,910 0
Powell & Son	5,300 0	H. Watkinson	4,902 0
E. Bates	5,300 0	A. Bradbury	4,880 0
Wilson & Kennington	5,177 0	H. White	4,842 0
Longden & Son, Ltd.	5,123 0	D. O'Neill & Son, Bower-road*	4,610 0
C. H. Gillam	5,001 10		
Dawson, Jones, & Co.	4,999 15		

ST. ALBANS.—For alterations to police station, Tess-road, for the Standing Joint Committee of Quarter Sessions and the County Council. Mr. Urban A. Smith, County Surveyor, Hatfield:—

J. Foot	£788 5	J. T. Bushell	£550 0
Hammond & Son	606 0	H. J. Skelton	414 10
Miskin & Son	589 0	D. Wilkins, Watford*	360 0
F. H. Pearse	578 0		
C. F. & L. Tennant	559 0		

SHOEBURYNESS.—For making-up of Friars street, part of Shoebury-avenue, and Wallace-street, for the Urban District Council. Mr. H. Harris, surveyor, Clarence-chambers, Southend-on-Sea;—

H. Amstead	£823 7 6	W. Iles	£670 0 0
J. Ventres	698 15 8	A. J. Harris, Shoeburyness*	628 18 0
Buxton & Jenner	698 7 0		

SLOUGH.—For making-up Stoke-gardens, for the Urban District Council. Mr. W. W. Cooper, Surveyor:—

Porter & Co.	£553 6 9	Free & Sons	£432 12 3
Forbes & Co.	495 18 7	J. Smith	404 14 10
G. Smith	478 18 0	Langley, Hardy, & Johnson, Slough and Leicester*	394 8 6
J. H. R. Atkins	471 6 4		
Burfoot & Sons	469 5 8		
J. Jackson	465 18 8		

SLOUGH.—For laying 756 lineal yds. of 9-in. and 6-in. pipe sewers, for the Urban District Council. Mr. W. W. Cooper, Surveyor:—

J. H. R. Atkins	£435 4 4	Forbes & Co.	£436 7 1
Watson, jun.	521 10 8	Burfoot & Son	502 11 1
J. Jackson	423 17 11	Langley, Hardy, & Johnson, Slough and Leicester*	374 7 3
A. C. Soan	447 5 9		
Porter & Co.	430 0 0		
Free & Sons	507 7 3		

TAYNUILT (N.B.).—For new public hall, for the Public Hall Committee of Taynuilt, Argyllshire. Mr. G. Woulfe Brenan, architect, Oban. Quantities by architect:—

Masons and Bricklayers.

D. & J. Mc Dougall	£259 19 10	Springall & Co.	£231 19 0
J. Stevenson	254 0 0	H. Macdougall	222 0 7
P. Grey	248 15 7	J. Craig	220 11 0
D. & A. Minns	242 19 6	J. Rowan, Appin*	214 15 0
D. & W. Mc Nivell & Co.	238 18 2		

Joiners.

P. Grey	£393 3 9	D. & J. Mc Dougall	£324 2 0
W. Menzies	357 6 5	D. & W. Mc Nivell & Co.	292 7 9
J. & A. Mc Dougall	342 12 10	P. McNicol	283 17 4
D. & A. Minns	342 8 8	J. Rowan, Appin*	289 10 0
J. McLean	340 16 11	McColl & Graham	283 9 11
J. McDougall	335 0 0		
P. Wight	329 12 10		

Plumbers.

Anderson & Nisbet	£67 0 0	A. McArthur & Son	£59 12 9
D. Crawford	60 14 11	A. McDougall, Oban*	57 14 0

Slaters.

J. Reid	£91 2 0	D. McG. Jamieson*	£86 0 9

Plasterers.

D. W. Callum	£47 10 4	D. Peat, Port William*	£43 3 3

Painters.

A. Robertson, Oban* £25 6 9

TWICKENHAM.—For erecting pumping station, boiler house, destructor house, chimney shaft, workshops, etc., at Sewage Disposal Works, the Mereway, for the Urban District Council. Mr. W. Fairley, engineer, 69, Victoria-street, Westminster, S.W. Mr. F. W. Pearce, Surveyor, Town Hall, Twickenham:—

		Less.
Johnson & Son	£13,374	£156
Lamplough	12,500	287
Mowlem & Co.	14,321	—
Soole & Son	12,440	415
Watson	11,959	275
Cowley & Drake	11,265	735
Cheeseman & Sons	12,440	340
Renshaw	11,397	349
J. W. Brooking	13,900	400
Thomas & Fearon	14,387	164
Perry & Co.	12,320	350
Kirk & Randall	11,977	300
Kemmidge & Shore	11,347	245
Gibson	10,590	298
Foster Bros.	11,898	284
Kingerlee & Sons	11,095	480
Fergusson & Co.	14,350	650
Haycock & Co.	9,930	227
Thomas & Edge	12,149	330
Lawrence & Son	11,988	294
Willcocks & Co.	11,965	350
Chambers Bros.	12,494	566
Hudson & Co.	12,758	302
Davey, Ltd.	11,387	700
W. Wallace	11,700	515
Page & Sons	10,649	387
Nightingale	11,300	250
Pethick	12,813	400
Minter	11,585	265
Wall	10,962	188
Johnson & Co.	11,200	250
Wisdom	10,475	250
Wimpey & Co.	11,139	350
Speechley & Smith	12,950	370
Wilkinson Bros.	11,986	240
Potterton	12,240	183
Kingerlee‡	11,995	480
Fergusson & Co.‡	15,350	650

‡ Amended tenders.

WATFORD.—For an extension of the cemetery, etc., for the Burial Board. Mr. C. P. Ayres, surveyor, Watford:—

W. Judge	£330	Bracey & Clark, Watford*	£297
S. Swain	305	G. Pitkin	192
H. Brown	300		

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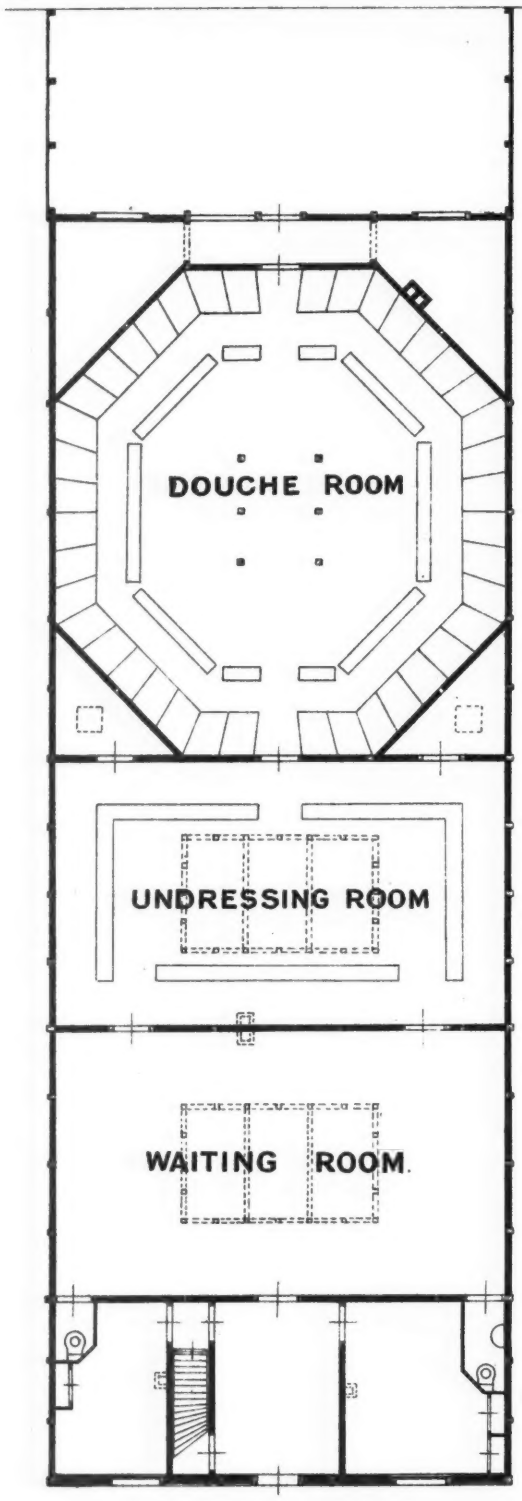
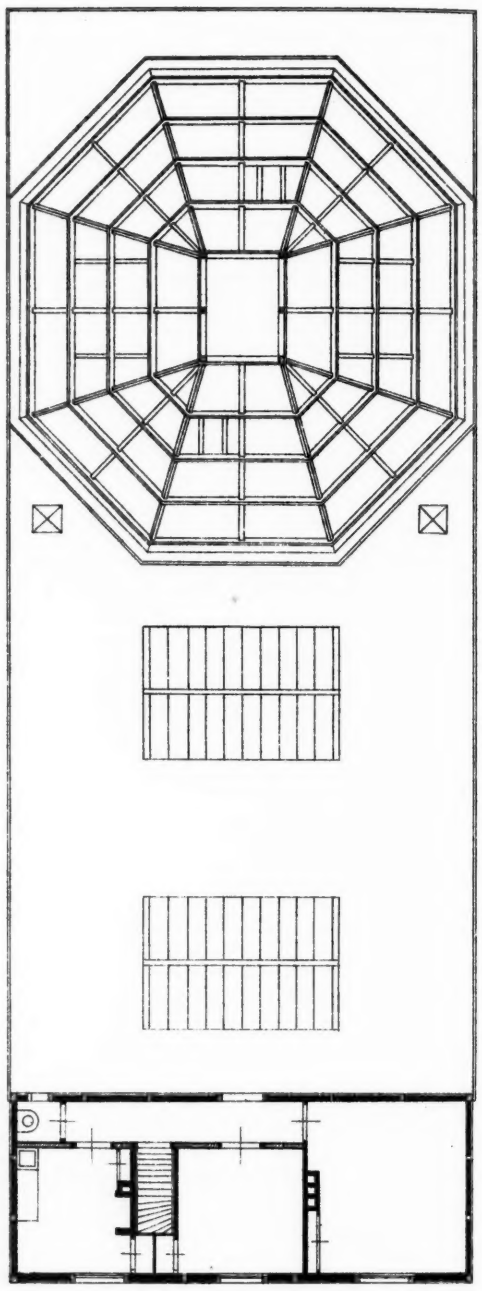


GROUND PLAN.



UPPER PLAN.

SCALE OF FEET.

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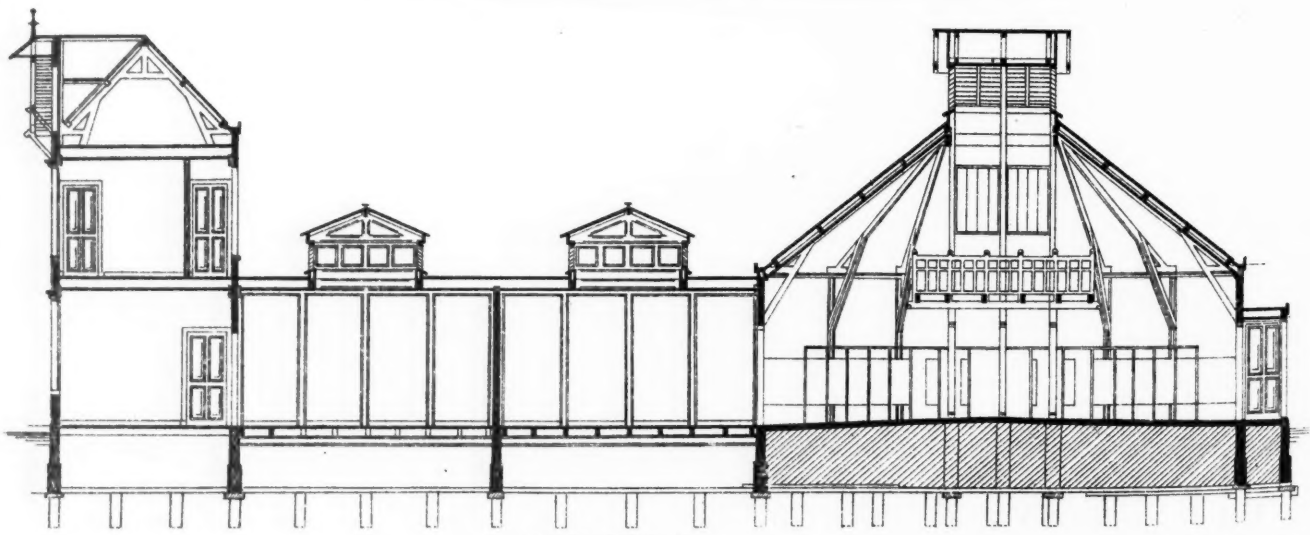

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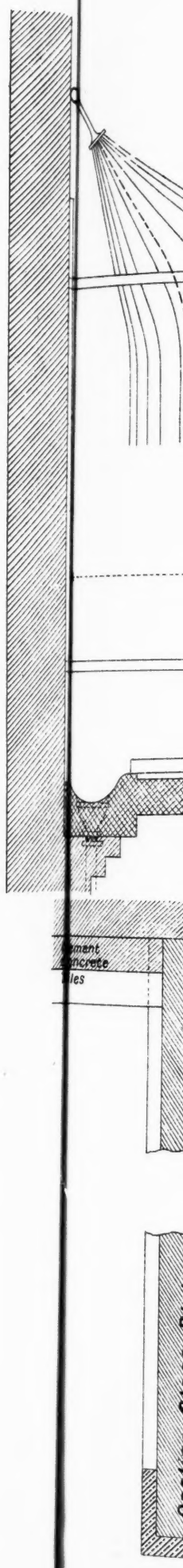

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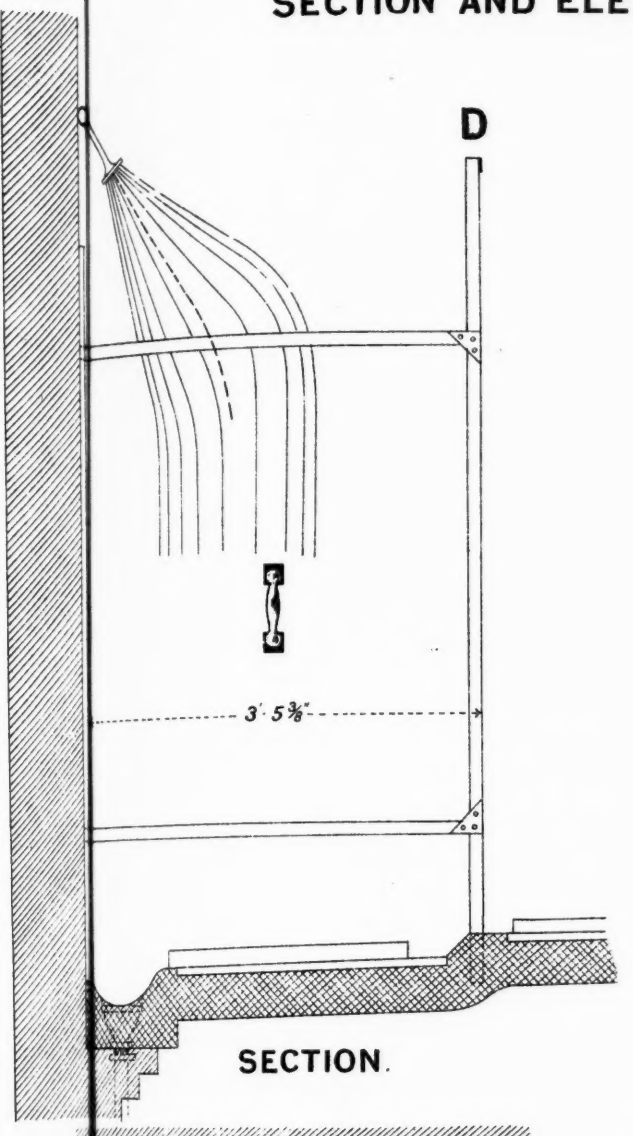

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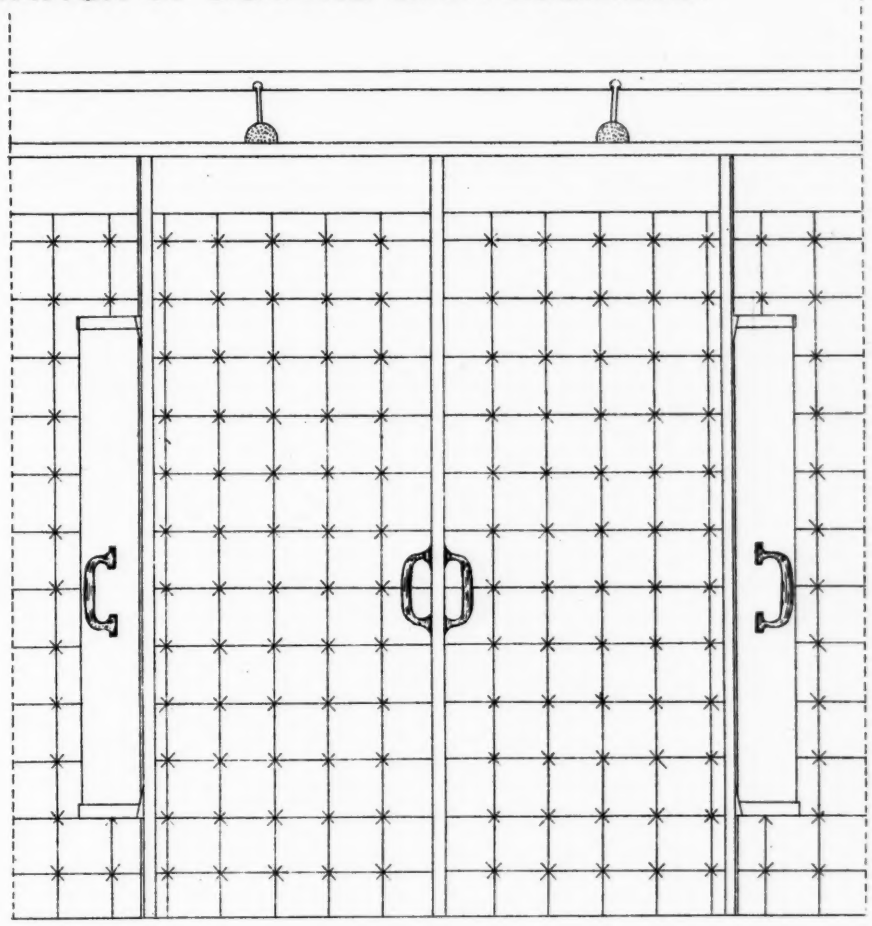

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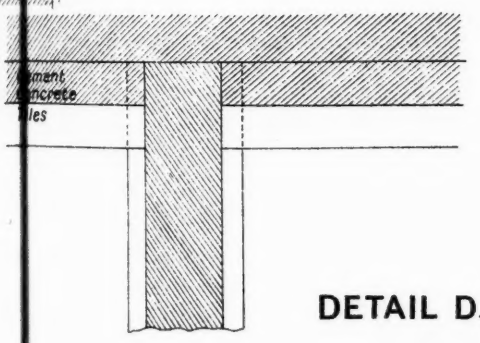
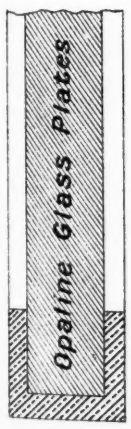
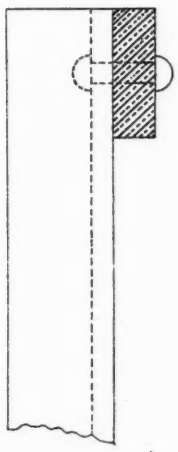


DETAIL D.





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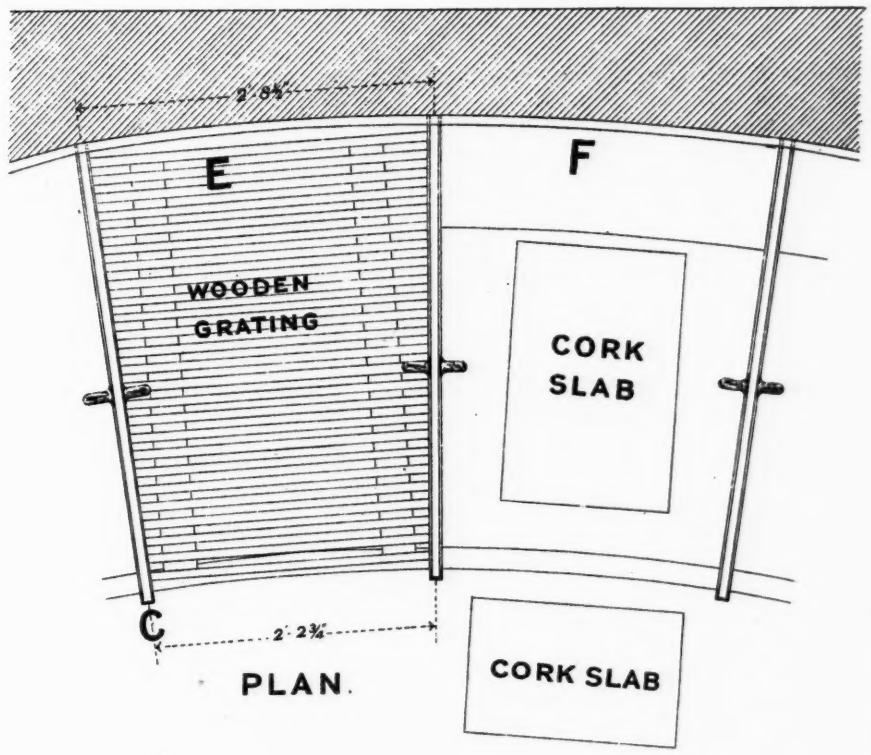

PLAN.

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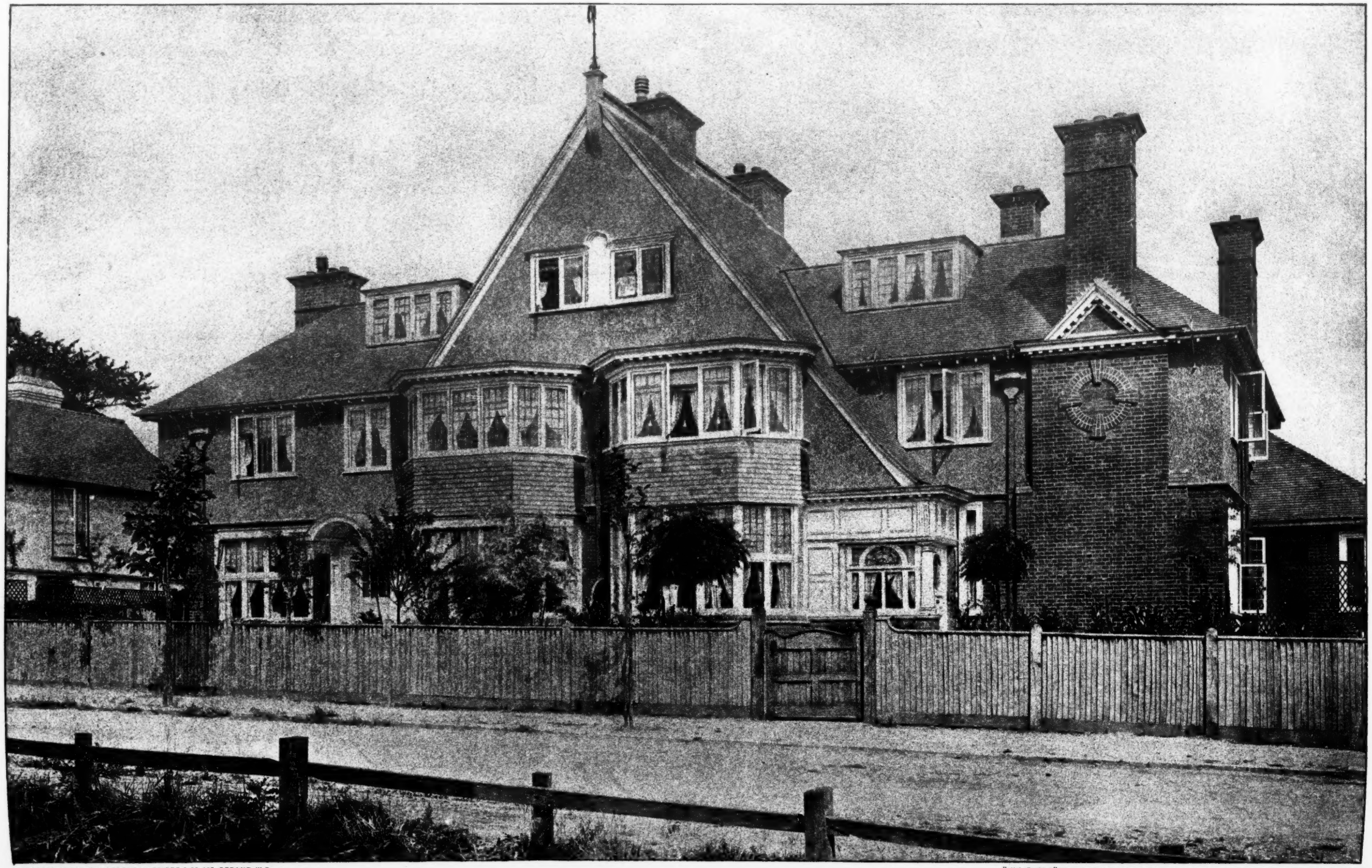

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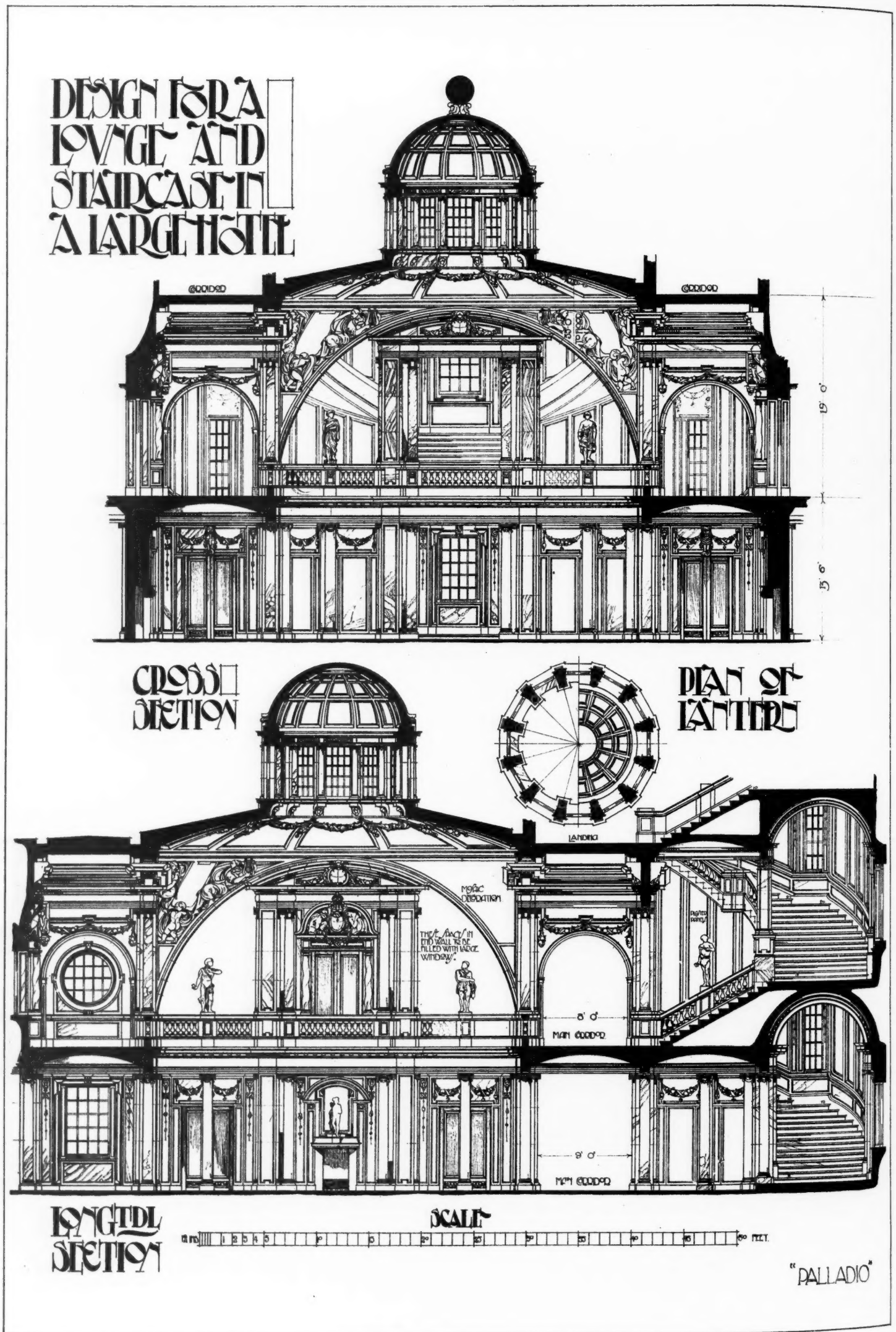

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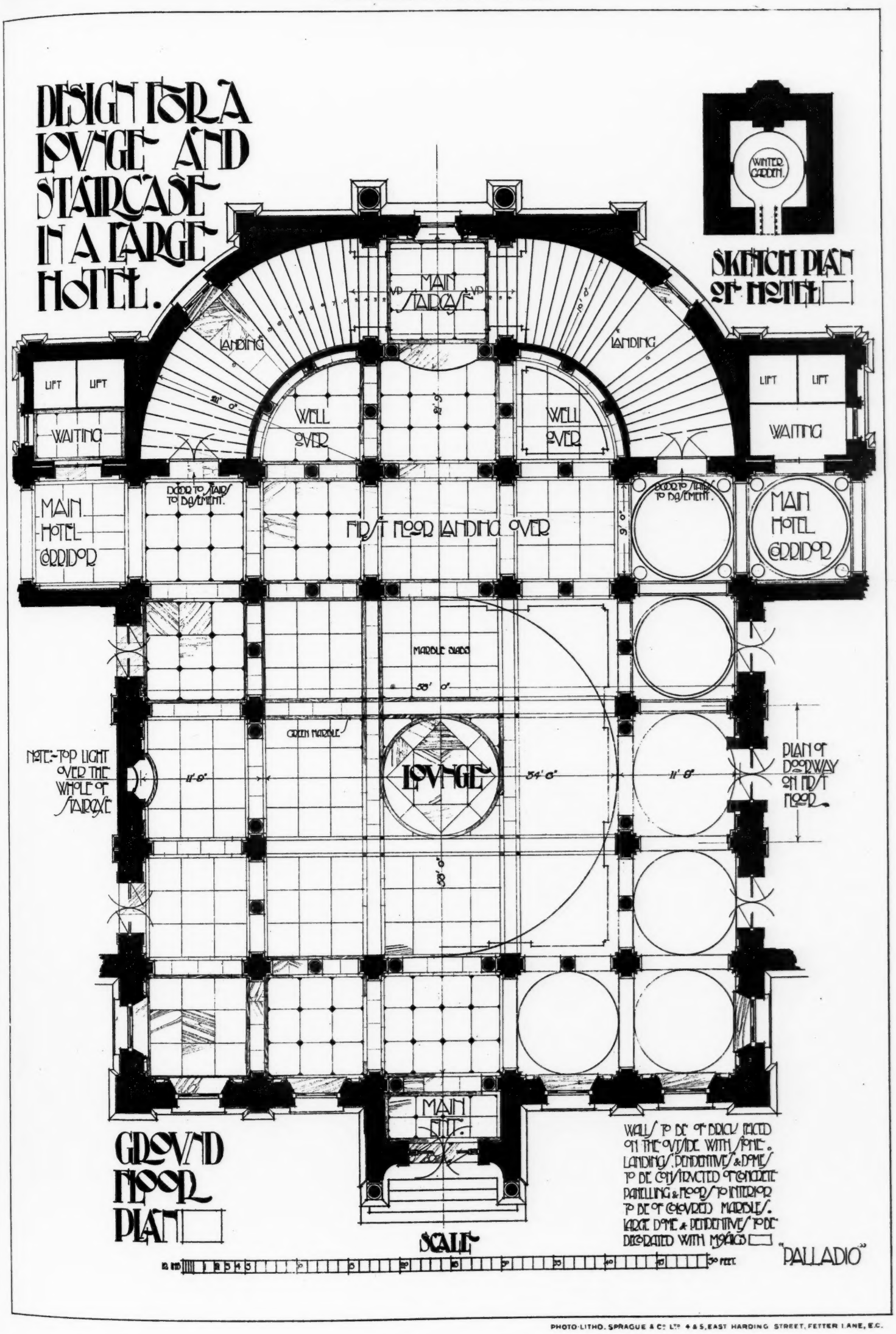

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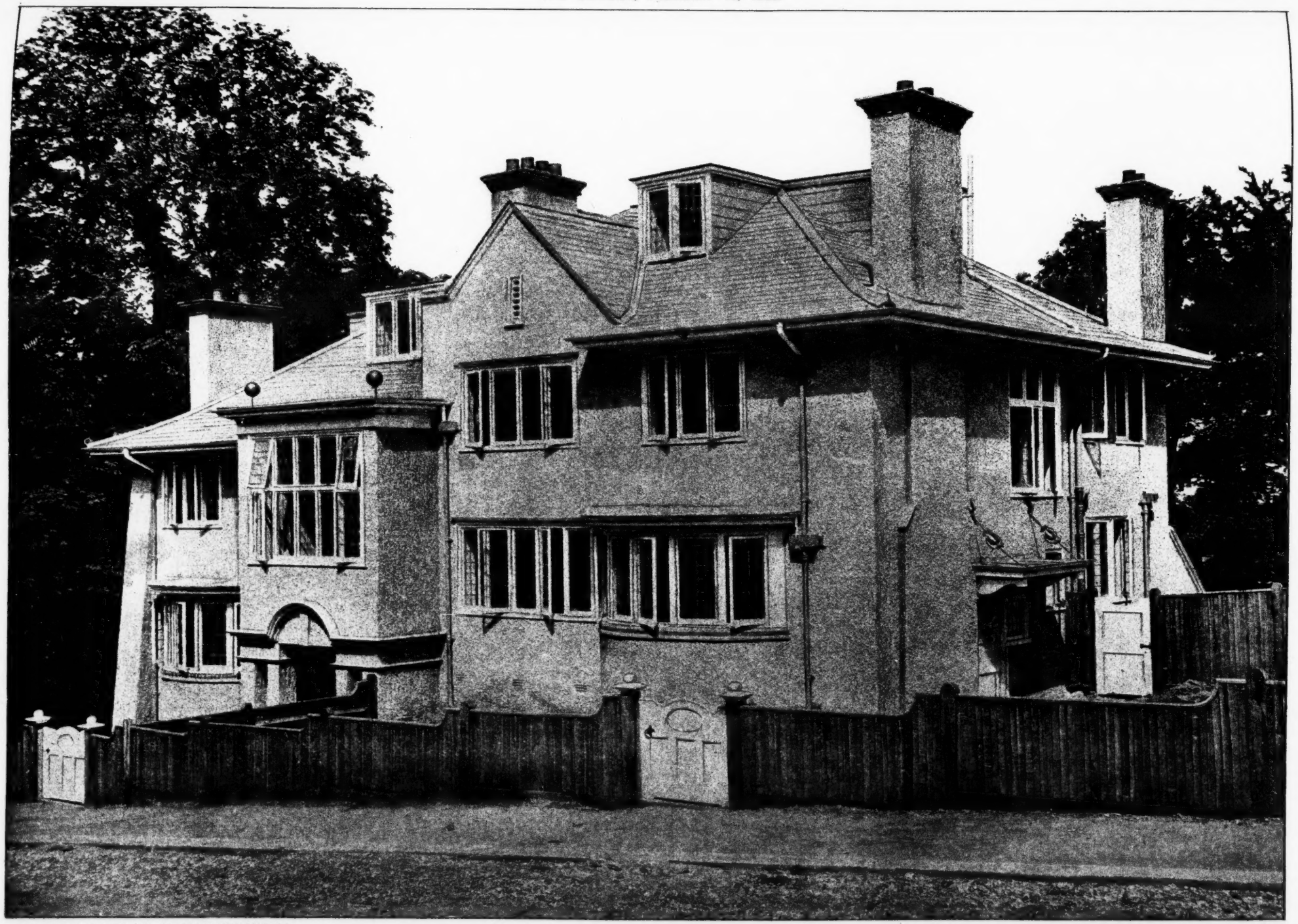

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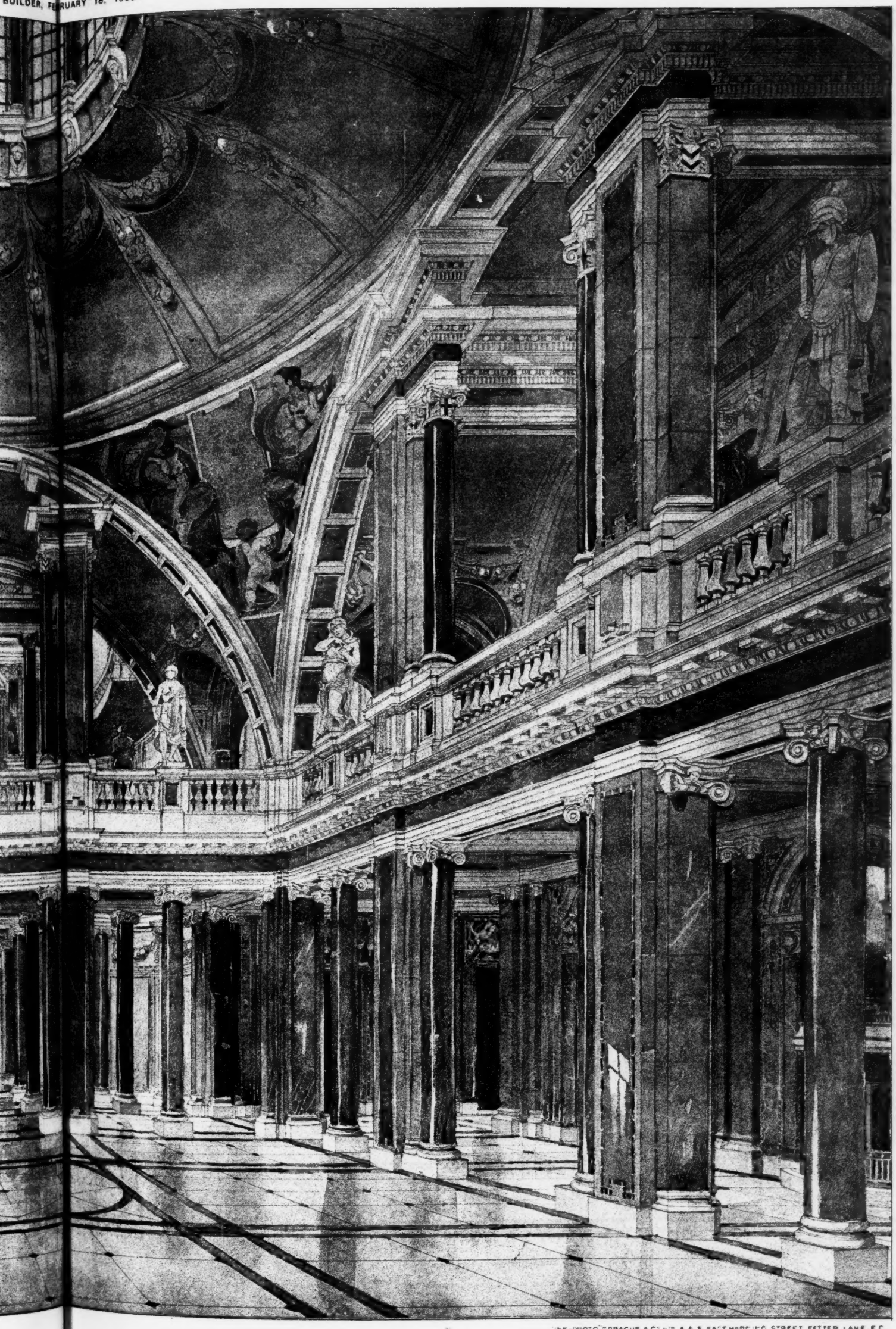

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